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# REPORT

OF THE

## MEDICAL AND HEALTH DEPARTMENTS

### KEDAH AND PERLIS

FOR THE YEAR

**1932 A.D.**

(21ST SHA'ABAN, 1350 TO 3RD RAMTHAN, 1351 A.H.)

BY

J. GRAY, M.D.,



STATE SURGEON TO THE KEDAH GOVERNMENT.

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Alor Star:

PRINTED AT THE KEDAH GOVERNMENT PRESS.

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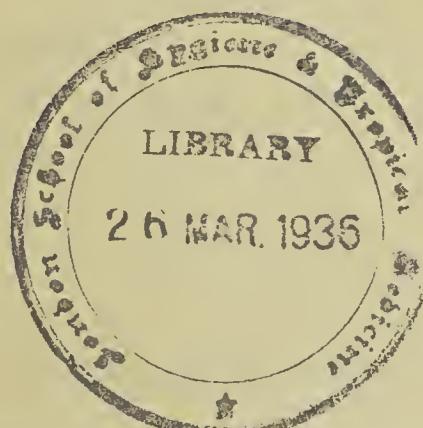
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## I. ADMINISTRATION.

The principal appointments are:—

- The State Surgeon (also State Surgeon for Perlis Government).
- The Senior Health Officer.
- The Health Officer.
- 2 Medical Officers.
- 1 Lady Medical Officer—stationed at Alor Star.
- 1 Pathologist.
- 7 Assistant Surgeons.
- 2 European Nursing Sisters.
- 54 Dressers (including 3 Laboratory Assistants).
- 1 Qualified Dispenser-Store-keeper.
- 3 Asiatic Nurses.
- 6 Asiatic certificated midwives (attendant class).
- 4 Vaccinators.
- 5 Health Inspectors attached to Health Office.
- 10 Health Inspectors attached to various Sanitary Boards.
- 1 Laboratory Assistant, Government Pathologist's Office.

## CHANGES IN THE STAFF.

Dr. L. F. Day, Medical Officer, Central Kedah, proceeded on furlough on 1-9-32 (29-4-51), prior to retirement.

Dr. (Mrs.) L. S. O'May, Lady Medical Officer, proceeded on furlough on 1-6-32 (26-1-51), and Dr. (Miss) E. M. Weir was seconded to replace her on the same date.

Miss A. Lamond Stewart, European Nursing Sister, proceeded on furlough on 1-5-32 (24-12-50), prior to her retirement.

Dr. G. K. Menon, temporary Assistant Surgeon, was retrenched on 30-4-32 (23-12-50).

Dr. S. M. Sundara Rajan, temporary Assistant Surgeon, was retrenched on 2-12-32 (3-8-51).

Post of Medical Officer, Sungai Patani, retrenched.

1 post of European Nursing Sister, Alor Star, retrenched.

1 Hospital Assistant retired on pension.

2 Assistant Surgeons were retrenched.

1 extra clerk was granted to the Department.

### POPULATION.

The population of Kedah by the 1931 Census, according to races, is:— Malays 286,262; Chinese 78,415; Indians 50,824; Europeans 411; Eurasians 108; and others 13,671; Total 429,691.

Appendix A gives the totals for the last 15 years.

Appendices B—H give details of births and deaths, and Appendix K shews the principal causes of deaths.

### DISTRICTS.

The State is divided into 4 Districts for purpose of medical and health administration:— North, Central, South, and the Island of Langkawi and adjoining islands.

North Kedah has an area of 1,549 square miles with an approximate population of 225,560. This area is mostly paddy land. The population for the most part is Malays.

Central Kedah has an area of 1,546 square miles with a population of approximately 116,083.

South Kedah has an area of 553 square miles with a population of approximately 75,689.

Langkawi Island and islands adjoining have an area of 59 square miles and a population of 12,359.

Central Kedah and South Kedah contain most of the rubber estates in Kedah, and a large portion of the population is South Indians.

### MEDICAL INSTITUTIONS.

#### NORTH KEDAH.

Hospital, Alor Star .. .. ..	250 beds.
Out-door Dispensary, Alor Star Town.	
Malay Women and Children Dispensary, Mukim Pumpong.	
Out-door Dispensary, Changloon.	
,,             ,,             Yen.	

#### CENTRAL KEDAH.

Hospital, Sungai Patani .. .. ..	285 beds.
,,      Baling .. .. ..	34 ,,
Out-door Dispensary, Sik.	

#### SOUTH KEDAH.

Hospital, Kulim .. .. ..	200 beds.
Out-door Dispensary, Bandar Bharu.	
Langkawi Hospital, Kuah .. .. ..	63 beds.

North, Central and South Districts are each provided with a Motor Dispensary by which visits are made to all schools, villages and Police Stations accessible by road.

In Langkawi Island the Assistant Surgeon or Dresser visits all villages every month by road or sea, distributing medicines, vaccinating and inspecting schools.

The map shows the area covered by the said travelling Dispensaries.

During the year, teaching in first aid has been given in accessible Police Stations and a first aid outfit supplied to all Police Stations.

All road coolies working under the Public Works Department, are examined every quarter, for symptoms of tuberculosis.

### BUILDINGS.

Alteration of administration block, Hospital, Alor Star, providing admission, ward and office.

A New Female Ward, Alor Star.

An attap ward for the accommodation of Phthisis cases is being constructed on the top of the hill for Kulim hospital.

### FINANCIAL.

The Revenue for the financial year 1350 A.H. (19-5-31 to 6-5-32 A.D.) was as follows:—

	1350 A.H.	1349 A.H.
Medical .. .	.. \$12,899.11	\$39,593.82
Health .. .	.. 217.50	55.00

The decrease in the Medical Revenue is due to the slump.

### EXPENDITURE.

#### MEDICAL BRANCH.

	1350 A.H.	1349 A.H.
Personal Emoluments ..	\$172,744.26	\$175,996.79
Other Charges ..	194,364.53	221,716.88

The decrease in the Medical expenditure under Personal Emoluments is partly due to the reduction of certain staff and payment of salary to certain officers at lower rates—and the decrease under Other Charges is due to fewer admissions to hospitals.

#### HEALTH BRANCH.

	1350 A.H.	1349 A.H.
Personal Emoluments ..	\$33,591.02	\$23,941.48
Other Charges ..	20,367.08	24,116.83

The actual expenditure of the whole Medical Department, after deducting the revenue was \$407,950.28.

## II. PUBLIC HEALTH.

### GENERAL.

Up to the middle of the year 1929, the Muhammedan Calendar was in force, so that the 1932 data are only comparable with those of the two previous years. With the exception of 3 cases of small-pox health has been good.

The death rate 18.44 per mille was the lowest on record, and birth rate 36.30 per mille was for all practical purposes the same as in 1931.

The natural increase of the population was 8,009 as compared with 6,486 in 1931.

### COMMUNICABLE DISEASES.

#### *Malaria:*

- (a) The total number of deaths from this disease was 206, as against 182 in the previous year.
- (b) "Unspecified Fever" accounted for 3,596 deaths as against 3,900 in 1931, and continues to be the most important cause of death.
- (c) The number of deaths from infantile convulsions has fallen from 2,707 in 1930 when this was the chief cause of death to 1,557 for the year under review. Last year these three diseases for reasons given in the annual report, were grouped together under the heading of Malaria, the total number of deaths being 5,887. The figure for 1932 was 5,359.

*Cholera:* No cases.

*Small-pox:* 3 cases—all having occurred on a small Chinese owned rubber estate, near Gurun Town in the District of Kuala Muda. The original of these cases was traced from Sungei Dua in Province Wellesley. It was reported by the Medical Officer of the Bedong Group Hospital where it was brought after an illness of 8 days.

As a result of the enforcement of rigid local quarantine measures, only two other cases occurred.

*Tropical Typhus:* No cases have been reported

*Typhoid:* 31 cases were reported as against 40 in 1931.

*Ankylostomiasis:* 327 cases were reported as against 490 in 1931, and 1,276 in 1930.

*Tuberculosis:* The number of cases reported was 289, the figures for the previous year being the same.

*Vital Statistics:* In the past, the estimation of the population has been arrived at, by adding to the population of the previous year the excess of births over deaths for the succeeding year.

In order that these data may be comparable through out Malaya, population figures are determined by the method of Geometrical Progression. The population for the middle of 1932 thus calculated was 443,021. As a matter of interest, the balancing equation method gives 430,783. All rates have been determined from the former figure. They are to be found in Appendices "A" to "K".

*Infantile Mortality:* The rate was 119.88 per mille, which is the lowest on record.

As usual the highest rate is amongst Tamils, and the lowest amongst Malays, but while the Malay rate has risen from 98.55 in 1931 to 109.87 in 1932, the Tamil rate has had a remarkable reduction from 237.32 to 177.34, Appendix "H" shows the rates for the previous 6 years.

#### OFFICIALS.

The following table gives the Health Statistics of Government Officials, other than Subordinates, in Kedah.

	Europeans.	Asiatics.
Number of officials resident .. ..	68	75
Average number resident .. ..	44.27	66.78
Total number on sick list .. ..	17	28
Total number of days on sick leave .. ..	240	312
Average daily number on sick list .. ..	0.05	0.07
Percentage of sick to number resident .. ..	25.00	37.33
Average number of days on sick list for each patient .. ..	4.66	7.67
Average sick time to each resident .. ..	3.53	4.17
Total number invalid .. ..	..	..
Percentage of invalidings to total resident .. ..	..	..
Total deaths .. ..	1	1
Percentage of deaths to total resident .. ..	1.47	1.33
Percentage of deaths to average number resident .. ..	2.25	1.49
Number of cases of sickness contracted away from residence .. ..	..	..

### III. HYGIENE AND SANITATION.

(i) Routine anti malarial measures chiefly oiling were carried out in the Sanitary Board areas of Alor Star, Sungai Patani, Kulim and Kuah in the Island of Langkawi.

(ii) Monthly larval surveys were also made in the above mentioned places and in addition at the two frontier stations at Bukit Kayu Hitam and Padang Besar.

(iii) Similar surveys were made on a number of estates where employers had decided to undertake permanent measures for the elimination of malaria.

(iv) The permanent subsoil drainage work in the hospital ravine at Sungai Patani was completed.

(v) One meeting of the antimalaria Board was held during the year.

#### PROPAGANDA.

This work is limited to the exhibition of cinematograph films.

Two films were supplied by the Committee for Public Health and Education, Federated Malay States. One on Malaria, Ankylostomiasis and Child Welfare, and the other on Tuberculosis.

From the 23rd July to the end of the year 48 exhibitions were given in schools and 6 in Kampongs, making a total of 54, at which over 30,000 attendances were recorded. At each exhibition the opportunity was taken to introduce a short preliminary lecture on suitable subjects. These were given by the Health Inspector Hassan who was in charge of the propaganda work and is to be congratulated on the success of the undertaking.

#### WATER SUPPLY AND SANITARY ARRANGEMENTS.

The source of water in 50% of the schools inspected was unsatisfactory. These deficiencies are being steadily remedied.

45% of these schools have either insufficient or unsuitable latrine accommodation or none at all.

#### ENACTMENTS ETC.

A more up to date Registration of Births and Deaths Enactment was passed during the year. In addition revised bye-laws dealing with Slaughter House and Markets were passed and have been adopted by nearly all the Sanitary Boards in the State.

#### PROSECUTIONS.

One under Quarantine and Prevention of Diseases Enactment (secreting of small-pox case) with a resulted fine of \$150.00.

15 under the Labour Code for failure to obey orders for the construction of wells, latrines with 11 convictions, one under the Registration of Births and Deaths Enactment.

#### QUARANTINE INSPECTION AT PADANG BESAR.

The number of passengers examined at the Railway frontier station for the year was as follows:—

1st Class .. .. .. .. ..	1,063
2nd „ .. .. .. .. ..	1,482
3rd „ .. .. .. .. ..	9,154
Total .. .. .. .. ..	11,699

### GENERAL SANITATION.

(i) General sanitation on estates was reported upon at length in my annual report for 1931, and as the condition remains very much the same, good health as reflected by the estates statistical data which are shown in Appendices "A" to "G" being maintained, it is not proposed to make further comments.

(ii) Orders were made under the Labour Code particularly for protected wells and latrines.

### VISITS TO ESTATES.

A total of 495 visits were paid to estates throughout the year by the Health Office staff.

### VISITS TO SCHOOLS.

(i) 62 schools were visited of which 44 were Malay Vernacular and 18 Chinese.

(ii) The total number of children in the Registers of the Malay schools was 5,164 of whom 4,216 were inspected.

In the Chinese schools of 672 registered pupils, 533 were inspected.

(iii) The examination of schools children of the Health Office staff is confined to the male sex.

(iv) The usual analysis of complaints found on inspection is shown in Appendix "L".

(v) Last year, the unvaccinated rates amongst school children were given as 7% Malays and 5% Chinese. It was pointed out that these were subject to considerable error.

In 1932 the error was entirely limited—the combined Malay and Chinese rate being .9% unvaccinated and just over 1% failures.

### IV. MATERNITY AND CHILD WELFARE.

During the year there were 204 deaths recorded as due to affections connected with pregnancy and parturition or a percentage of 1.26 to total births. The number of still births recorded were 852 as compared with 756 in 1931, or an increase of 96.

347 cases under "Pregnancy and its diseases" were treated in the various hospitals and there were 24 deaths or 6.92% to total treated.

Dr. (Mrs.) L. S. O'May, Lady Medical Officer, was in charge of the Child Welfare Centre in North Kedah till 1-6-32 (26-1-51) when Dr. (Miss) E. M. Weir, seconded from the Straits took her place.

#### *Maternity Wards.*

##### Inpatients.

Malays	..	..	..	..	..	..
Chinese	..	..	..	..	..	23
Tamils	..	..	..	..	..	33
Sikhs	..	..	..	..	..	5
Others	..	..	..	..	..	..
					Total	.. 61
Normal cases	..	..	..	..	..	40
Abnormalities and forcep cases					..	11
Still-borns	..	..	..	..	..	10
					Total	.. 61

*Out-door Maternity Cases.*

Malays	..	..	..	..	..	109
Chinese	..	..	..	..	..	3
Tamils	..	..	..	..	..	4
Sikhs	..	..	..	..	..	..
Others	..	..	..	..	..	1
					Total	.. 117
Normal	..	..	..	..	..	109
Abnormalities	..	..	..	..	..	7
One case twins	..	..	..	..	..	1
					Total	.. 117

N.A.B. and Sulfarsenol Injections by Lady Medical Officer.

A total of 2,184 injections were given, of which 1,236 were to women and 948 to children. The following were the nationalities:—

Malays	..	..	..	..	..	1,914
Chinese	..	..	..	..	..	194
Indians	..	..	..	..	..	60
Others	..	..	..	..	..	16
					Total	.. 2,184

Of these injections, 1922 were for Yaws and 262 for Syphilis

Out-door visits paid by the Lady Medical Officer to patients in their homes totalled 801, of which 197 were new cases and 604 re-visits.

*Child Welfare Centre.*

Formerly, this centre was run by private enterprise; on the 14th November, 1932 (15-7-51) a new Women and Children Out-door Dispensary, exclusively for Malays, was substituted. Up to the end of the year, mainly on account of paddy activities, no attendances were recorded. It is hoped that on the termination of the paddy season and the Bulan Puasa attendances will commence.

## V. HOSPITALS AND DISPENSARIES.

A total of 12,473 patients were treated in all Hospitals. The deaths numbered 596, giving a percentage of 4.77. 141 deaths occurred within 48 hours of admission; excluding these, the death rate was 3.64%.

The following table gives the number treated in hospitals for the past 5 complete years:—

Year	No. treated	Deaths	Percentage of deaths
1345 A.H. ...	...	1,841	8.57
1346 " ...	24,432	1,987	8.13
1347 " ...	19,121	1,506	7.87
1930 A.D. ...	17,800	1,155	6.48
1931 " ...	12,695	738	5.81
1932 " ...	12,473	596	4.77

The admissions shew a decrease, mainly due to the activities of the Health Board and Group Hospitals.

The death rate shews a satisfactory decrease.

The following return gives the number of Indoor Sick treated during the year in the various Hospitals:—

Hospital				No. treated	Deaths	Percentage of deaths
Alor Star	...	...	...	5,175	229	4·42
Sungei Patani	...	...	...	3,852	195	5·06
Kulim	...	...	...	2,614	152	5·81
Baling	...	...	...	444	13	2·92
Langkawi	...	...	...	209	7	3·34
PRISON SICK WARDS.						
Alor Star	...	...	...	156	...	...
Sungei Patani	...	...	...	23	...	...
Total			...	12,473	596	4·77

#### Nationalities of Indoor Patients.

Nationalities			No. treated	Deaths	Percentage of deaths
Europeans	...	...	13	2	15·38
Eurasians	...	...	6	...	...
Chinese	...	...	5,102	330	6·46
Indians	...	...	5,365	206	3·85
Javanese	...	...	25	1	4·00
Malays	...	...	1,694	43	2·59
Japanese	...	...	4	...	...
Others	...	...	264	14	5·30
Total			...	12,473	596
					4·77

The average daily number of Indoor patients in Kedah Government Hospitals for the past 5 years was:—

1345 A.H.	..	..	..	..	..	948.67
1346 „	..	..	..	..	..	1,002.94
1347 „	..	..	..	..	..	942.38
1930 A.D.	..	..	..	..	..	881.11
1931 „	..	..	..	..	..	557.86
1932 „	..	..	..	..	..	548.10

## PREVAILING DISEASES—SICK INDOOR.

Diseases	1930 A.D.			1931 A.D.			1932 A.D.		
	Cases	Deaths	Deaths %	Cases	Deaths	Deaths %	Cases	Deaths	Deaths %
Malaria ... ...	5,461	269	4.93	2,735	103	3.76	2,527	68	2.66
Dysentery, Amœbic ...	244	32	13.11	160	17	10.62	142	13	9.15
" Bacillary ...	216	46	21.28	99	12	1.21	46	11	23.91
Venereal Diseases ...	577	10	1.73	248	...	...	278	...	...
Respiratory Diseases. (ex. Pulm. Tuber.)...	1,143	196	17.14	598	46	7.85	513	27	5.26
Pulmonary Tuber. ...	262	99	37.78	300	116	38.67	373	113	30.29
Ankylostomiasis ...	1,207	51	4.22	609	19	3.15	655	28	4.27
Ulcers ... ...	1,552	8	.51	1,126	1	.08	1,034	...	...
Wounds & Injuries ...	1,849	36	1.94	1,675	26	1.55	1,681	14	.83
Other diseases ...	5,289	408	7.52	5,145	398	7.73	5,224	322	6.18
Total ...	17,800	1,155	6.48	12,695	738	5.81	12,473	596	4.77

## MENTAL DISEASES.

There were 221 Kedah lunatics at the Central Mental Hospital, Tanjung Rambutan, at the beginning of the year; 55 were admitted, 31 were discharged as cured, 5 absconded, 13 died, and 4 were readmitted; and the number remaining at the end of the year was 231 (177 males and 54 females).

The admissions for the last 5 years were as follows:—

1346 A.H.	..	..	..	..	..	..	..	72
1347 "	..	..	..	..	..	..	..	59
1930 A.H.	..	..	..	..	..	..	..	80
1931 "	..	..	..	..	..	..	..	73
1932 "	..	..	..	..	..	..	..	59

## LEPROSY.

	Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining
Pulau Jerajak and Jelutong	100	31	131	7	...	1	10	113
Pangkor Laut	11	2	13	1	...	...	...	12
Sungei Buloh Asylum	14	...	14	...	...	...	4	10
Kedah Hospitals	1	65	66	6	50	5	2	3

The admissions to the Asylums during the last five years were as follows:—

1346 A.H.	..	..	..	..	..	20
1347 "	..	..	..	..	..	45
1930 A.D.	..	..	..	..	..	25
1931 "	..	..	..	..	..	42
1932 "	..	..	..	..	..	33

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## “A”

The population of Kedah for the year 1932 is estimated 443,021 against 422,774 for 1931 A.D. The following is a comparative table for the last 16 years:—

Years	Estimated Population	Births	Birth-rate per mille	Deaths	Death-rate per mille
1329 A.H. ...	245,813	...	...	...	...
1336 „ ...	290,000	7,902	27.25	6,299	21.72
1337 „ ...	300,000	9,102	30.34	11,548	38.49
1338 „ ...	325,000	9,593	29.51	8,557	26.14
1339 „ ...	338,558	10,153	29.99	8,718	25.75
1340 „ ...	340,000	10,305	30.30	8,656	25.40
1341 „ ...	341,596	9,454	27.73	7,834	23.41
1342 „ ...	350,000	11,095	31.70	7,877	22.41
1343 „ ...	375,500	11,152	29.69	8,647	23.02
1344 „ ...	384,124	11,342	29.52	9,910	25.75
1345 „ ...	398,222	13,738	34.49	10,723	26.92
1346 „ ...	399,864	13,066	32.68	11,424	28.57
1347 „ ...	405,650	15,347	37.83	9,561	23.57
1348 „ ...	409,328	8,928	21.81	5,250	12.83
1930 A.D. ...	416,288	16,745	40.22	9,785	23.51
1931 „ ...	429,691	15,615	36.34	9,129	21.24
1932 „ ...	443,021	16,182	36.30	8,173	18.45

## “B”

Population according to races with death rate for the year 1932.

Races	Approximate Population	Deaths	Death-rate per mille
Europeans ...	427	3	7.03
Eurasians ...	111	...	...
Malays ...	286,212	5,414	18.92
Chinese ...	81,184	1,647	20.28
Indians ...	53,642	823	15.34
Others ...	21,445	286	13.34
Total ...	443,021	8,173	18.45

## “C”

Infantile death rate for the last 13 years.

Years	Death under one year	Death rate per mille
1338 A. H. ...	1312	136.76
1339 „ ...	1980	194.98
1340 „ ...	1704	165.35
1341 „ ...	1530	161.73
1342 „ ...	1401	126.27
1343 „ ...	1689	151.45
1344 „ ...	1924	169.24
1345 „ ...	2248	163.64
1346 „ ...	2073	158.66
1347 „ ...	1963	127.71
1348 „ ...	1231	137.88
1930 A. D. ...	2395	143.02
1931 „ ...	1907	122.12
1932 „ ...	1940	119.89

## “D”

Distribution of deaths according to Sex and Nationality for the year 1932.

	Nationality			Male	Female	Total
Europeans	...	...	...	2	1	3
Eurasians	...	...	...	...	...	...
Malays	...	...	...	2,790	2,624	5,414
Chinese	...	...	...	1,098	549	1,647
Indians	...	...	...	462	361	823
Others	...	...	...	136	150	286
	Total	...		4,488	3,685	8,173

## “E”

Births according to Sex and Nationality for the year 1932.

	Nationality			Male	Female	Total
Europeans	...	...	...	...	...	...
Eurasians	...	...	...	5	2	7
Malays	...	...	...	5,882	5,503	11,385
Chinese	...	...	...	1,524	1,373	2,897
Indians	...	...	...	775	708	1,483
Others	...	...	...	208	202	410
	Total	...		8,394	7,788	16,182

## “F”

Still-Births according to Sex and Nationality for the year 1932.

	Nationality			Male	Female	Total
Europeans	...	...	...	...	...	...
Eurasians	...	...	...	1	...	1
Malays	...	...	...	350	269	619
Chinese	...	...	...	64	53	117
Indians	...	...	...	55	43	98
Others	...	...	...	14	3	17
	Total	...		484	368	852

## “G”

The Infantile death rate per thousand birth, amongst the principal Nationality was:—

Malays.	Chinese.	Indians.
109.98	135.66	177.24

## “H”

The Infantile mortality rate for the last 6 years from 1345 A.H.—1932 A.D.

Year	Malays	Chinese	Indians
1345 A.H. ... ...	144.30	122.61	407.07
1346 „ „ „	128.46	136.96	406.34
1347 „ „ „	111.95	136.72	262.96
1348 „ „ „	117.25	141.06	255.43
1930 A.D. ... ...	124.33	144.24	252.09
1931 „ „ „	98.55	144.06	237.32
1932 „ „ „	109.98	135.66	177.24

## “I”

Incidence of deaths according to ages and Nationality for the year 1932.

Ages	Europeans	Eurasians	Malays	Chinese	Indians	Others	Total
0 to 3 months ... ...	... ...	... ...	926	293	202	16	1,437
4 „ 12 „ „ „	... „ „ „ „	... „ „ „ „	325	100	61	17	503
1 „ 4 years „ „ „	... „ „ „ „	... „ „ „ „	750	162	88	34	1,034
5 „ 9 „ „ „	... „ „ „ „	... „ „ „ „	347	107	34	20	508
10 „ 14 „ „ „	... „ „ „ „	... „ „ „ „	151	41	18	13	223
15 „ 19 „ „ „	... „ „ „ „	... „ „ „ „	139	40	35	11	225
20 „ 24 „ „ „	... „ „ „ „	1 „ „ „ „	182	69	52	5	309
25 „ 29 „ „ „	... „ „ „ „	... „ „ „ „	202	68	64	13	347
30 „ 34 „ „ „	... „ „ „ „	... „ „ „ „	256	99	61	23	439
35 „ 39 „ „ „	... „ „ „ „	... „ „ „ „	183	74	51	14	322
40 „ 44 „ „ „	... „ „ „ „	... „ „ „ „	239	111	45	12	407
45 „ 49 „ „ „	... „ „ „ „	2 „ „ „ „	157	97	23	14	293
50 „ 54 „ „ „	... „ „ „ „	... „ „ „ „	269	91	16	19	395
55 and over years „ „ „	... „ „ „ „	... „ „ „ „	1,288	295	72	76	1,731
Total ...	3	... 5,414	1,647	822	287	8,173	

## "J"

## Infectious Diseases reported in the year 1932.

Diseases.	Cases.	No. of Deaths.
Mumps ..	.. 53	..
Chicken-pox ..	.. 76	..
Measles ..	.. 96	..
Typhoid ..	.. 26	9
Para typhoid ..	.. 4	..
Small-pox ..	.. 3	..
Diphtheria ..	.. 6	2
Cerebro-Spinal Fever ..	.. 2	2
Tropical Typhus ..	.. 1	..
Phthisis ..	.. 59	37
Tetanus ..	.. 3	2
Beri beri ..	.. 11	..
Erysipelas ..	.. 7	1
Trachoma ..	.. 1	..
Leprosy ..	.. 20	1
Pertussis ..	.. 3	..
Tetanus Neonatorum ..	.. 2	1
Whooping Cough ..	.. 3	..
Pneumococci Meningitis ..	.. 1	1
Influenza ..	.. 378	1
Dengue ..	.. 41	..
Total ..	796	57

## "K"

Table showing the principal causes of death according to register of death for the year 1932.

Malaria ..	.. 206
Enteric ..	.. 31
Dysentery A. ..	.. 180
Dysentery B. ..	.. 8
Influenza ..	.. 40
Tuberculosis of Respiratory system ..	.. 284
Other form of Tuberculosis ..	.. 5
Leprosy ..	.. 1
Syphilis ..	.. 35
Ankylostomiasis ..	.. 327
Fever Unspecified ..	.. 3,596
Cancer ..	.. 32
Beri beri ..	.. 127
Diseases of the Heart ..	.. 23
Other Diseases of Circulatory system ..	.. 26
Bronchitis ..	.. 134
Pneumonia ..	.. 99
Other Diseases of Respiratory system ..	.. 70
Diarrhoea and Enteritis ..	.. 22
Other diseases of Digestive system ..	.. 85
Convulsion ..	.. 1,557
Diseases of the Nervous system and sense Organs ..	.. 11
Non Venereal Diseases ..	.. 15
Diseases of Pregnancy Child birth and Puerperal state ..	.. 204
Premature of birth and diseases of early infancy ..	.. 24
Old age or Senility ..	.. 783
Violence all forms ..	.. 31
Other Diseases ..	.. 217
Total ..	8,173

“L”

## SCHOOL FIGURES.

## (I) School figures (Malay Schools) from January to December, 1932.

1.	Total number of children on Register	..	..	5,164
2.	„ „ „ inspected	..	..	4,216

No.	Disease.		No. of Cases.	Percentage.
1	Spleen	...	284	6.73
2	Anæmic	...	153	3.63
3	Not vaccinated	...	85	2.02
4	Ear disease	...	11	.26
5	Scabies	...	22	.52
6	Yaws	...	179	4.24
7	Other skin diseases	...	125	2.96
8	Eye disease	...	15	.36
9	Caries class I	...	622	14.75
10	Caries class II	...	518	12.29
11	Caries class III	...	470	11.15

## (II) School figures (Chinese) from January to December, 1932.

1.	Total number of children on Register	..	..	672
2.	„ „ „ inspected	..	..	533

No.	Disease.		No. of Cases.	Percentage.
1	Spleen	...	29	5.44
2	Anæmic	...	26	4.88
3	Not vaccinated	...	2	.38
4	Ear disease	...	...	...
5	Scabies	...	16	3.00
6	Yaws	...	2	.38
7	Eye disease	...	...	...
8	Caries class I	...	81	15.20
9	Caries class II	...	141	26.45
10	Caries class III	...	215	40.39

Total Schools visited by Health Officer and Health Staff .. 62

## “M”

## Health Office Laboratory Figures.

Khan Reaction (blood) .. .. .. ..	437
Wassermann (blood) .. .. .. ..	437
,, (C.S. Fluid) .. .. .. ..	1
Weil Felix .. .. .. ..	28
Widal .. .. .. ..	112
Agglutination reaction for Dysentery .. .. .. ..	1
Pus for culture .. .. .. ..	1
Blood culture .. .. .. ..	9
Urine for culture .. .. .. ..	13
Stool for culture .. .. .. ..	37
Throat swabs .. .. .. ..	32
Nose swabs .. .. .. ..	1
C.S. Fluid for culture .. .. .. ..	4
Brain for culture .. .. .. ..	1
Tissue for culture of B. Tetani .. .. .. ..	2
,, “ Gas Organism .. .. .. ..	1
Autogenous vaccine .. .. .. ..	4
Bacteriological Examination of snails .. .. .. ..	1
,, mouse .. .. .. ..	1
Chemical Examination of urine .. .. .. ..	3
Blood sugar .. .. .. ..	2
,, urea .. .. .. ..	2
Chemical Examination of C.S. Fluid .. .. .. ..	1
Test for red cell fragility .. .. .. ..	3
Colloidal test C.S. fluid .. .. .. ..	2
Blood matching .. .. .. ..	3
Tissue for histological diagnosis .. .. .. ..	2
Examination for negri Bodies .. .. .. ..	1
Chemical Examination of water .. .. .. ..	3
Examination of PH of water .. .. .. ..	1
,, of stomach content .. .. .. ..	2
Estimation alcohol percentage .. .. .. ..	4
Experiment with chloromine .. .. .. ..	6
,, oil mixture .. .. .. ..	12

## Police cases.

For Human blood .. .. .. ..	33
For sepermatozoa .. .. .. ..	1

## “N”

## ESTATE FIGURES.

Population by nationalities of European Holdings from January to December, 1932.

Nationalities		Labourers		Dependents		Infants	G. Total
		Males	Females	Adults	Children		
Malays ... ...	1,312	801	216	636	174	3,139	
Indians ... ...	10,388	4,734	2,355	4,614	1,648	23,739	
Chinese ... ...	739	7	121	57	4	928	
Javanese ... ...	34	5	11	4	3	57	
Others ... ...	...	...	18	4	...	22	
Total ...	12,473	5,547	2,721	5,315	1,829	27,885	

## “O”

Population by nationalities of Native holdings.

Nationalities	Labourers		Dependents		Infants	G. Total
	Males	Females	Adults	Children		
Malays ... ...	2,379	1,759	181	978	103	5,400
Indians ... ...	703	214	132	190	34	1,273
Chinese ... ...	2,537	110	218	264	55	3,184
Javanese ... ...	15	9	1	2	...	27
Others ... ...	41	9	4	8	2	64
Total ...	5,675	2,101	536	1,442	194	9,948

Total visits to Estates by Senior Health Officer and Staff during 1932 .. 495.

## “P”

Deaths by nationalities on Estates of European holdings.

Nationalities	Labourers	Dependents		Infants	G. Total
		Adults	Children		
Malays ... ...	3	3	2	13	21
Indians ... ...	22	21	12	98	153
Chinese ... ...	...	...	...	1	1
Javanese ... ...	...	1	...	...	1
Others ... ...	...	...	...	...	...
Total ...	25	25	14	112	176

## “Q”

## ESTATE FIGURES.

Total labourers and dependants admitted to Government Hospitals from European Holdings with deaths, 1932.

- |                              |     |
|------------------------------|-----|
| 1. Total admissions .. .. .. | 346 |
| 2. Total deaths .. .. ..     | 19  |

## “R”

Deaths by nationalities on Estates of Native holdings, 1932.

Nationalities	Labourers	Dependents		Infants	G. Total
		Adults	Children		
Malays ... ...	4	4	8	8	24
Indians ... ...	...	1	5	3	9
Chinese ... ...	4	2	...	2	8
Javanese ... ...	...	1	...	...	1
Others ... ...	...	...	...	...	...
Total ...	8	8	13	13	42

## “S”

Total Labourers and Dependents admitted to Government Hospitals from Native Holdings with deaths, 1932.

1. Total admissions	..	..	..	..	25
2. Total Deaths	..	..	..	..	5

## “T”

Comparative table of total estate population, total deaths and death rate for the year 1931 and 1932 A.D.

## 1931 A.D.

## (i)

No.	Class of Estates	Population	Deaths in lines	Deaths in Hospital	Total Deaths	Death rate	Total death rate
1	European owned ...	31,231	231	37	268	8.5	...
2	Native owned ...	21,580	33	3	36	1.6	...
	Total ...	52,811	264	40	304	...	5.7

## 1932 A.D.

## (ii)

No.	Class of Estates	Population	Deaths in lines	Deaths in Hospitals	Total Deaths	Death rate	Total death rate
1	European owned ...	27,885	176	19	195	6.99	...
2	Native owned ...	9,948	42	5	47	4.72	...
	Total ...	37,833	218	24	242	...	6.40

## APPENDIX—U.

ANNUAL RETURN OF INDOOR PATIENTS TREATED IN HOSPITALS  
IN KEDAH, DURING 1932 A. D.

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>INFECTIVE DISEASES.</b>						
Dengue	...	...	1	...	1	...
Amœbiasis	...	...	5	1	5	...
Cerebrospinal fever	...	...	2	2	2	...
Chicken-pox	...	1	18	...	19	1
Diphtheria	...	...	4	2	4	...
Dysentery Amœbic	...	8	134	13	142	9
" Bacillary	...	7	39	11	46	1
Enteric Fever	...	4	16	6	20	...
Erysipelas	...	...	14	2	14	2
Filariasis	...	...	1	...	1	...
Gonorrhœa	...	10	208	...	218	15
Gonorrhœal Rheumatism	...	2	37	...	39	2
Gonorrhœal Conjunctivitis	...	...	4	...	4	...
Gonorrhœal urethritis	...	...	17	...	17	...
Influenza	...	1	114	2	115	3
Leprosy	...	1	65	2	66	3
Malaria :—						
(a) Benign Tertian	...	41	1,008	10	1,049	33
(b) Quartan	...	2	46	2	48	1
(c) Malignant Tertian	...	13	798	45	811	20
(d) Mixed Infection	...	...	37	3	37	1
(e) Type Undiagnosed	...	19	470	4	489	8
(f) Malarial Cachexia	...	9	83	4	92	3
(g) Blackwater Fever	...	...	1	...	1	1
Measles	...	1	19	...	20	...
Mumps	...	1	7	...	8	...
Phagedoena	...	...	1	...	1	...
Pneumonia	...	2	86	39	88	2
Pyæmia	...	1	3	1	4	...
Pyrexia of uncertain origin	...	...	56	6	56	2
Rheumatism	...	1	37	...	38	5
Septicæmia	...	...	15	12	15	...
Pott's Disease	...	...	1	...	1	...
Condyloma	...	...	1	...	1	...
Syphilis :—						
(a) Congenital	...	...	11	2	11	...
(b) Primary	...	4	46	...	50	6
(c) Secondary	...	15	189	1	204	24
(d) Inherited	...	...	5	...	5	...
(e) Tertiary	...	8	35	1	43	3
Tetanus	...	...	16	13	16	...
Tuberculosis :—						
(a) General	...	...	14	2	14	4
(b) Phthisis	...	32	327	111	359	57
Whooping Cough	...	...	1	...	1	...
Yaws	...	1	47	...	48	5
Other Infective Diseases	...	4	41	1	45	2
<b>INTOXICATIONS.</b>						
Alcoholism	...	...	15	...	15	...
Morphinism	...	...	16	...	16	...
Opium habit	...	1	24	...	25	2

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>GENERAL DISEASES.</b>						
Anæmia	...	...	1	30	6	31
Arthritis	...	...	...	11	1	11
Beri-beri	...	...	5	36	1	41
Diabetes	...	...	1	3	...	4
Debility	...	...	...	13	2	13
Chronic Rheumatism	...	...	...	4	...	4
Osteo-arthritis	...	...	...	7	...	7
Marasmus	...	...	...	3	2	3
Other General Diseases	...	16	89	9	105	14
<b>CERTAIN MORBID CONDITIONS INCIDENT TO VARIOUS PARTS.</b>						
Malformations	...	...	2	5	...	5
New Growth, Non-malignant	...	...	...	10	...	10
Do. Malignant	...	2	39	14	41	3
Cyst	...	...	...	14	1	14
Other Morbid Conditions	...	...	1	...	1	...
<b>DISEASES OF THE NERVOUS SYSTEM.</b>						
Nerves :—						
Neuritis	...	...	6	28	2	34
Multiple Neuritis	...	...	...	2	...	2
Other Diseases of the Nerves	...	2	1	...	3	...
Spinal Cord and Membranes :—						
Myelitis	...	...	1	3	...	4
Locomotor ataxia	...	3	12	...	15	2
Other diseases of the Spinal Cord and Membranes	...	...	...	1	1	...
Brain and Membranes :—						
Meningitis	...	...	...	6	6	6
Hæmorrhage	...	...	...	4	3	4
Other Diseases of Brain and Membranes	...	...	...	6	4	6
Nervous Disorders :—						
Paraplegia	...	...	3	8	1	11
Hemiplegia	...	...	2	25	3	27
Cerebral Diplegia	...	...	...	1	...	1
Monoplegia	...	...	...	1	...	1
Convulsions	...	...	...	9	3	9
Epilepsy	...	...	...	11	...	11
Neuralgia	...	...	...	12	...	12
Hysteria	...	...	...	3	...	3
Sciatica	...	...	...	2	...	2
Other Nervous Disorders	...	2	24	2	26	...
Mental Diseases :—						
Mania	...	...	4	11	2	15
Melancholia	...	...	...	8	...	8
General Paralysis of the insane	...	...	1	10	...	11
Dementia	...	...	...	2	...	2
Observation	...	...	...	40	...	40
Other Mental Diseases	...	3	17	...	20	2

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>DISEASES OF THE EYE.</b>						
Conjunctivitis	...	...	1	46	...	47
Trachoma	...	...	...	14	...	14
Keratitis	...	...	1	5	...	6
Ulcer of Cornea	...	...	3	19	...	22
Staphyloma	...	...	...	1	...	1
Iritis	...	...	1	9	...	10
Glaucoma	...	...	1	1	...	2
Optic neuritis	...	...	...	1	...	1
Ophthalmia	...	...	...	2	...	2
Optic atrophy	...	...	...	1	...	1
Cataract	...	...	5	8	...	13
Panophthalmitis	...	...	1	9	...	10
Amblyopia and Amaurosis	...	...	...	1	...	1
Errors in refraction	...	...	...	2	...	2
Blepharitis	...	...	...	2	...	2
Blindness	...	...	...	2	...	2
Other Eye Diseases	...	11	28	1	39	8
<b>DISEASES OF THE EAR.</b>						
Inflammation	...	...	...	2	...	2
Otitis	...	...	...	15	...	15
Other Ear Diseases	...	...	...	11	...	11
<b>DISEASES OF THE NOSE.</b>						
Inflammation	...	...	1	...	...	1
Other Nose Diseases	...	1	4	...	5	...
<b>DISEASES OF THE CIRCULATORY SYSTEM.</b>						
Auricular fibrillation	...	...	...	1	...	1
Pericarditis	...	...	...	1	...	1
Endocarditis	...	...	...	6	3	6
Valvular Disease	...	...	...	18	3	18
Myocarditis	...	...	2	11	5	13
Mitral regurgitation	...	...	...	1	...	1
Dilatation of Heart	...	1	...	4	1	5
Disordered action of Heart	...	...	...	1	...	1
Aneurysm	...	...	...	2	...	2
Phlebitis	...	...	...	2	...	2
Other Diseases of the System	...	2	25	6	27	4
<b>DISEASES OF THE RESPIRATORY SYSTEM.</b>						
Asthma	...	...	6	86	...	92
Coryza	...	...	1	18	...	19
Laryngitis	...	...	...	5	...	5
Lung abscess	...	...	...	2	2	...
Bronchitis	...	...	19	296	5	315
Broncho-pneumonia	...	...	2	31	15	33
Pleurisy	...	...	...	26	4	26
Empyema	...	...	1	4	1	5
Other Diseases of the System	...	1	15	...	16	1
<b>DISEASES OF THE DIGESTIVE SYSTEM.</b>						
Stomatitis	...	...	...	4	...	4
Ulceration of mouth	...	...	...	2	...	2
Glossitis	...	...	...	3	...	3
Gingivitis	...	...	...	2	...	2
Pyorrhoea alveolaris	...	1	...	8	1	9
Caries of tooth	...	...	...	11	...	11
Sore throat	...	...	...	1	...	1

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>DISEASES OF THE DIGESTIVE SYSTEM—(Contd.)</b>						
Tonsillitis	...	...	6	...	6	...
Haematemesis	...	...	2	...	2	...
Inflammation of pharynx	...	...	10	...	10	...
Gastritis	...	1	27	...	28	2
Gastric ulcer	...	...	22	1	22	5
Ulceration of stomach	...	2	21	...	23	1
Cancer stomach	...	...	4	3	4	...
Dyspepsia	...	...	25	...	25	4
Enteritis	...	...	68	20	68	...
Appendicitis	...	1	13	3	14	...
Colitis	...	4	6	...	10	...
Ulceration of intestines	...	1	1	...	2	1
Sprue	...	...	4	3	4	...
Hernia	...	...	36	1	36	1
Intestinal obstruction	...	...	7	7	7	...
Diarrhoea	...	2	61	4	63	1
Constipation	...	...	35	...	35	2
Colic	...	...	37	...	37	...
Ischio-rectal abscess	...	2	6	...	8	...
Fissure of anus	...	...	3	...	3	1
Fistula in ano	...	...	14	...	14	...
Hemorrhoids	...	1	33	...	34	3
Hepatitis	...	1	21	1	22	...
Abscess of liver	...	1	8	...	9	1
Cirrhosis of liver	...	4	32	17	36	2
Jaundice	...	...	11	3	11	...
Peritonitis	...	...	6	4	6	...
Ascites of unknown origin	...	...	3	1	3	1
Other diseases of the System	2	70	7	72	4	
<b>DISEASES OF THE LYMPHATIC SYSTEM.</b>						
Spleen, Inflammation	...	...	1	...	1	...
Spleen, Rupture	...	...	1	...	1	...
Bubo	...	3	53	1	56	3
Lymphangitis	...	...	3	...	3	...
Other Diseases of the System	...	...	27	2	27	1
<b>DISEASES OF THE THYROID BODY</b>						
...	...	...	2	...	2	...
<b>DISEASES OF THE URINARY SYSTEM.</b>						
Acute nephritis	...	...	1	22	9	23
Nephritic abscess	...	...	3	...	3	...
Bright's disease	...	2	7	3	9	2
Bacilluria	...	...	5	...	5	1
Cystitis	...	...	9	2	9	1
Calculus	...	...	10	1	10	...
Retention of urine	...	1	8	...	9	...
Renal colic	...	...	1	...	1	...
Incontinence of urine	...	...	1	...	1	...
Other diseases of the System	1	6	3	7	...	
<b>DISEASES OF THE GENERATIVE SYSTEM.</b>						
<i>Male :</i>						
Stricture	...	...	11	1	11	...
Urethral fistula	...	...	3	...	3	1
Urethritis	...	...	6	...	6	...
Paraphimosis	...	...	1	...	1	...
Phimosis	...	2	18	...	20	1
Ulcer Penis	...	1	3	...	4	...

Disease	Remained	Admitted	Died	Total	Remaining	Remarks
<b>DISEASES OF THE GENERATIVE SYSTEM—(Contd.)</b>						
<i>Male—Contd.</i>						
Soft chancre ...	...	3	28	31	1	
Serotom, Abscess ...	...	...	1	1	...	
Do. Sloughing ...	...	...	1	1	...	
Hydrocele ...	...	...	18	18	1	
Orchitis ...	...	1	9	10	...	
Epididymitis ...	...	2	17	19	...	
Other diseases, Male Organs ...	5	4	...	9	...	
<i>Female :</i>						
Metritis ...	...	...	1	1	...	
Erosion of cervix ...	...	...	2	2	...	
Displacement and distortions ...	...	...	3	3	...	
Vulva, Inflammation ...	...	...	1	1	...	
Other diseases, Female Organs ...	2	35	1	37	2	
<b>AFFECTIONS CONNECTED WITH PREGNANCY AND PARTURITION.</b>						
Natural labour ...	...	2	156	158	5	
Difficult labour ...	...	1	20	21	1	
Pregnancy ...	...	...	74	74	...	
Abortion ...	...	...	13	13	...	
Retention of placenta ...	...	...	3	3	...	
Premature birth ...	...	...	11	11	...	
Ante-partum haemorrhage ...	...	...	2	2	...	
Parturition ...	...	...	3	3	...	
Puerperal sapraemia ...	...	2	6	8	1	
Other affections ...	...	7	47	54	1	
<b>DISEASES OF THE FEMALE BREAST</b>						
BREAST ...	...	...	1	1	...	
<b>DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.</b>						
Periostitis ...	...	2	4	6	...	
Caries of bones ...	...	1	2	3	...	
Necrosis of bones ...	...	...	1	1	...	
Arthritis ...	...	7	46	53	4	
Synovitis ...	...	1	29	30	6	
Lumbago ...	...	...	7	7	...	
Myalgia ...	...	1	42	43	...	
Osteomyelitis ...	...	...	11	11	1	
Other diseases of the Bones and Organs of Locomotion ...	...	1	14	15	2	
<b>DISEASES OF THE CONNECTIVE TISSUE.</b>						
Cellulitis ...	...	8	81	89	1	
Abscess ...	...	8	226	234	8	
Gangrene ...	...	2	5	7	...	
Other diseases of the Connective Tissue ...	...	5	11	16	1	
<b>DISEASES OF THE SKIN.</b>						
Impetigo ...	...	...	4	4	...	
Impetigo contagiosa ...	...	...	25	25	...	
Osteitis ...	...	1	...	1	...	
Urticaria ...	...	1	5	6	...	
Eczema ...	...	1	81	82	...	
Boil ...	...	...	6	6	...	
Carbuncle ...	...	1	15	16	1	

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
DISEASES OF THE SKIN—(Ctd.)						
Elephantiasis	...	...	1	1	...	...
Herpes	...	...	3	3	...	...
Herpes Zoster	...	...	2	2	...	...
Psoriasis	...	...	3	3	...	...
Ulcer	...	90	944	1,034	57	
Whitlow	...	...	8	8	...	...
Other Skin Diseases	...	3	26	29	1	
INJURIES.						
Wounds, Local	...	22	893	915	30	
Sprains	...	1	33	34	...	...
Fractures, Simple	...	8	94	102	9	
Do. Compound	...	6	16	22	2	
Dislocations	...	...	4	4	...	...
Cut throat	...	...	1	1	...	...
Burns and scalds	...	1	41	42	2	
Dog bite	...	3	58	61	4	
Snake bite	...	2	6	8	...	...
Other local injuries	...	12	480	492	7	
POISONS.						
Other Poisons	...	1	19	1	20	1
PARASITES.						
Ascaris Lumbricoides	...	10	308	318	12	
Ankylostomiasis	...	25	630	655	28	
Filaria	...	...	4	4	...	...
Tinea Circinata	...	...	1	1	...	...
Do. Imbricata	...	...	2	2	...	...
Ringworm	...	...	12	12	...	...
Scabies	...	...	54	54	1	
Worms	...	...	6	6	...	...
Other Vegetable Parasites	...	...	2	2	1	
Other Animal Parasites	...	1	12	13	2	
ILL-DEFINED DISEASES.						
Heart failure	...	...	...	10	...	...
Asthenia	...	...	...	2	...	...
UNDER OBSERVATION	...	35	645	680	30	
NO DISCOVERABLE DISEASE	...	3	259	262	1	
TOTAL	...	626	11,847	596	12,473	604

## APPENDIX—V.

## CLIMATOLOGICAL SUMMARY.

Station—ALOR STAR.

Lat.  $6^{\circ} 09' N.$   
Long.  $100^{\circ} 23' E.$ 

Height above M.S.L. 10 Ft.

AIR TEMPERATURE IN DEGREES FAHRENHEIT												HUMIDITY						RAINFALL					
Year 1932	MEANS						ABSOLUTE EXTREMES						PERCENTAGE			DEVIATION FROM NORMAL			MOST IN A DAY			No. of rainfalls days	
	9 a.m.	9 a.m.	9 p.m.	9 p.m.	A	B	Min.	Max.	Min.	Max.	Date	Min.	Max.	Min.	Max.	9 a.m.	9 p.m.	9 a.m.	in.	in.	in.	in.	
JANUARY	79.6	86.7	75.4	88.5	69.0	78.7	-1.4	92	31	65	10	84	4	75	28	68	53	81	0.06	-0.31	0.05	27	2
FEBRUARY	79.7	90.7	78.3	92.6	70.2	81.4	-0.4	95	7	65	15	88	18	74	18	75	48	81	1.92	+1.03	1.61	19	4
MARCH	82.1	90.0	79.1	93.3	71.5	82.4	-0.8	97	15	67	7, 18	90	25, 29	74	SEV.	70	52	80	3.08	+0.18	1.63	25	7
APRIL	82.1	87.5	78.9	90.5	73.9	82.2	-0.4	95	3	69	2	86	15	77	19	79	66	89	9.10	+3.98	2.66	12	16
MAY	82.3	87.8	79.0	90.1	74.8	82.5	-0.1	92	SEV.	72	4	85	26, 30	77	SEV.	81	66	90	11.44	+3.67	3.66	12	14
JUNE	80.4	85.4	78.9	87.7	74.4	81.1	-0.2	91	1	72	SEV.	84	8	78	12	83	71	89	8.49	-1.10	1.79	7	23
JULY	79.3	85.8	79.2	87.4	74.5	80.9	+0.2	90	25	71	15	81	6	77	24	85	67	88	4.36	-0.16	0.93	16	15
AUGUST	81.0	85.4	78.2	87.9	73.7	80.8	-0.4	90	SEV.	72	SEV.	84	29	76	3, 26	83	69	90	6.13	-2.39	2.87	30	15
SEPTEMBER	79.6	84.7	78.3	86.7	73.9	80.3	—	90	10, 19	71	12	82	22	76	7, 10	85	71	90	13.40	+1.97	2.95	21	22
OCTOBER	79.9	83.4	77.7	86.7	74.5	80.6	+0.3	91	10, 13	72	26	80	26	77	20	86	76	93	13.20	-0.15	2.24	29	22
NOVEMBER	79.2	81.3	76.2	85.3	73.7	79.5	-0.2	89	11	72	17	79	6	76	28	85	79	94	12.59	+4.85	2.26	8	20
DECEMBER	78.7	84.9	75.9	87.0	71.3	79.1	-0.8	91	26	66	10	83	SEV.	74	4	80	65	87	1.05	-6.44	0.54	15	6
A { Total Means or Extremes		80.3	86.1	77.9	88.6	72.9	80.7	-0.5	97	65	79	78	80.0	65.3	87.7	78	80.0	65.3	87.7	3.66	166		

APPENDIX—W.

ABSTRACT OF THERMOMETRICAL AND RAINFALL OBSERVATIONS TAKEN AT STATIONS OF THE STATES OF KEDAH AND PERLIS DURING THE YEAR 1932.

# MEDICAL AND SANITARY REPORT, PERLIS.

For the year ending 31st December, 1932 A.D.

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## ADMINISTRATION.

### STAFF.

The appointments in the Medical Department are as follows:—

The State Surgeon, Kedah, who visits once a month and oftener if required.  
1 Assistant Surgeon.  
1 Hospital Assistant, Grade I.  
1 Dresser Grade III.  
1 Dresser Probationer.  
1 Vaccinator.  
1 Midwife.  
1 Mosquito-larvae collector and Identifier.

### CHANGES IN STAFF.

Mr. R. Sivasambandan returned from study leave and took over on 4-6-32 from Mr. S. M. Sundara Rajan, Assistant Surgeon from Kedah, who had been acting during the former's absence.

The post of Dispensary Assistant was abolished, and he was taken as a Probationer Dresser.

One Midwife resigned; another was invalidated, and a third was appointed from 1-11-32.

### FINANCIAL.

Revenue collected .. .. ..	\$ 881.08
Expenditure .. .. ..	\$22,358.78

67 paying patients were admitted during the year.

### ORDINANCES.

No ordinance affecting public health was passed during the year.

### HEALTH.

10 cases of chicken-pox were reported—most of them occurring in the Police Barracks at Kangar.

An outbreak of measles occurred (September and October) chiefly in Mukim Abi and Kangar—92 cases (with no deaths) were reported in all.

9 cases of enteric fever (8 Chinese and 1 Indian with one death) were admitted into hospital; this is the highest number admitted into hospital for the past 7 years. 6 cases were from Kaki Bukit, one from Jegawei, one from Kangar and one from Padang Pauh.

2 cases of Tropical Typhus (with no deaths) were admitted into hospital—one was a Malay from Tasoh, and the other was an Indian from Arau.

As usual, fevers head the list of communicable diseases, and are responsible for nearly half the deaths in the State—330 against 436 in 1931.

The number of cases admitted into hospital for Malaria shows a decrease—297 against 367 for last year. The mortality from malaria is also less 5 against 16 in 1931.

Infantile convulsions are also a frequent cause of death 106 against 127 during last year.

Respiratory diseases come next in order to fevers, and are responsible for 142 deaths in the State (134 in 1931) Deaths from Pneumonia and Pulmonary tuberculosis still continue to be high.

There was a decreased mortality in the State—the death rate 14.92 per mille being the lowest recorded for the past ten years. Total deaths recorded amount to 743 against 951 in the previous years. The mortality from all other diseases except Respiratory diseases was less, as compared with last year.

The infant mortality records show 130 as against 179 deaths in the previous year—105.01 per mille—a distinct fall.

Births during the year show a slight increase (1,272 against 1,219 of the previous year).

Larval surveys by the Larvae collector and identifier show the prevalent types as in Appendix J.

The health of the Prisoners in Kangar Gaol was satisfactory; of the 47 prisoners who remained in the Goal at the beginning of the year, and 128 who were admitted during the year, 48 cases were admitted into hospital. (For further details vide Appendix C).

The health of the Government Servants was satisfactory; all were examined for signs of pulmonary tuberculosis; two were found to be suffering from active disease, and were invalidated.

#### RABIES.

Six cases of dog bite (5 in Mukim Arau and one in Kangar) were reported the first on 26-3-32 and the last on 28-11-32. Three were unknown stray dogs; the other three were killed on the spot. Their brains were sent to Institute for Medical Research, Kuala Lumpur through the State Veterinary Surgeon, Kedah, and were reported to be positive for rabies. Of the six persons bitten by dogs, since 4 refused treatment, only two were sent to Alor Star Hospital for treatment.

#### OFFICIALS.

The following table gives the Health Statistics of Government officials (including subordinates) in Perlis.

	Europeans.	Asiatics.
Total number of officials resident	.. .. 4	305
Average number resident	.. .. 2	305
Total number on sick list	.. .. ..	90
Total number of days on sick list	.. .. ..	578½days
Average daily number on sick list	.. .. ..	1.58
Percentage of sick to average number resident	.. ..	29.51
Average number of days on sick leave for each patient	..	6.43
Average sick time to each resident	.. .. ..	1.90
Total number invalidated	.. .. ..	5
Percentage of invalidings to total resident	.. ..	1.64
Total deaths	.. .. ..	..
Percentage of deaths to average resident	.. ..	..
Number of cases of sickness contracted away from residence	.. .. .. ..	..

## SCHOOLS.

Regular fortnightly visits were made to 14 schools by the Travelling Dispensary. Of the Malay Vernacular Schools in Perlis (4 Girls' Schools and 19 Boys' Schools) 8 boys' schools were visited by the Assistant Surgeon with the following results:—

	Percentage.
Total pupils on register	.. 732
Total seen	.. 587
Enlarged spleen	.. 227 38.6
Pupils showing no vaccination marks	.. 19 3.2
Yaws or Puru	.. 9 1.5
Diseases of the eye	.. .. ..
Ulcers and other skin diseases	.. 32 5.5

90 school children had N.A.B. injections for yaws.

## VACCINATIONS.

1,938 vaccinations were done (about 290 tubes of lymph were used).

Malays	..	..	..	..	1,683
Chinese	..	..	..	..	194
Siamese	..	..	..	..	50
Indians	..	..	..	..	10
Others	..	..	..	..	1
				Total	.. 1,938

\$748.96 were spent on vaccinations, roughly 38.65 cents per case.

## VITAL STATISTICS.

(a) The population of Perlis for 1932 A.D. is estimated at 49,800.

The following is a comparative table for the last six years.

Year	Estimated Population	Births	Birth rate per mille	Deaths	Death rate per mille
1935 A. H. ...	45,500	948	20.83	829	18.22
1936 „ „	46,400	940	24.26	722	15.56
1937 „ „	46,916	1,315	28.03	767	16.35
1930 A.D. ...	47,633	1,251	26.26	764	16.04
1931 „ „	49,296	1,219	24.74	951	19.29 census figure.
1932 „ „	49,800	1,272	25.54	743	14.92

The excess of births over deaths was 529.

(b) Population according to races with deaths and death rate.

Races	Approximate Population	Deaths	Death rate per mille
Eurasians ...	13	1	76.92
Europeans ...	5	...	...
Chinese ...	6,519	139	21.32
Malays ...	40,470	570	14.08
Indians ...	983	7	7.12
Siamese ...	1,770	26	14.69
Others ...	40	...	...
Total ...	49,800	743	14.92

There were 130 deaths among infants up to one year old, the rate being 105.01.

(c) Infant death rate for the last six years was:—

(corrected rate)

Year.			Deaths.	Rate per mille.
1345 A.H. . .	..	..	.. 129	140.22
1346 , , ..	..	..	.. 94	103.75
1347 , , ..	..	..	.. 146	113.80
1930 A.D. . .	..	..	.. 145	119.93
1931 , , ..	..	..	.. 179	151.18
1932 , , ..	..	..	.. 130	105.01

The infantile death rate per thousand births excluding still births among the principal nationalities was:—

Malays.	Chinese.	Indians.	Siamese.
99.12	126.58	55.56	186.05

(d) Births according to Nationalities and Sex.

Nationality	Males	Females	Total
Eurasians	...	...	...
Europeans	...	...	...
Chinese	...	98 60	158
Malays	...	539 480	1,019
Indians	...	9 9	18
Siamese	...	22 21	43
	Total ...	668 570	1,238

Still-births.

Males	..	..	..	..	19
Females	..	..	..	..	15
				Total ..	34

Total born .. .. .. 1,238 & 34 = 1,272.

(e) Still-births according to Sex and Nationality.

Nationality	Males	Females	Total
Eurasians	...	...	...
Europeans	...	...	...
Chinese	...	4 6	10
Malays	...	14 8	22
Indians	...	1 ..	1
Siamese	...	.. 1	1
	Total ...	19 15	34

## (f) Distribution of deaths according to Nationality and Diseases...

No.	Diseases	Malays		Chinese		Indians		Siamese		Eurasians		Total		Rate per mille of population		
		M	F	M	F	M	F	M	F	M	F	M	F			
1	Malaria	2	5	8	...	...	...	1	...	...	1	11	6	17	0.34	
2	Enteric fever	11	10	2	1	1	...	...	...	...	...	14	11	25	0.50	
3	Dysentery	1	...	2	...	...	...	...	...	...	...	3	...	3	0.06	
4	Influenza	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
5	Tuberculosis of Respiratory system	10	4	11	...	2	...	...	1	...	...	23	5	28	0.56	
6	Other forms of tuberculosis	...	...	1	...	...	...	...	...	...	...	1	...	1	0.02	
7	Leprosy	1	...	...	...	...	...	...	...	...	...	1	...	1	0.02	
8	Syphilis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
9	Ankylostomiasis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
10	Ascariasis	3	3	...	...	...	1	...	...	...	...	3	4	7	0.14	
11	Fever unspecified	136	108	27	11	1	...	2	3	...	...	166	122	288	5.78	
12	Cancer	...	...	1	...	...	...	...	...	...	...	1	...	1	0.02	
13	Beri Beri	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
14	Diseases of the heart	1	...	5	...	...	...	...	...	...	...	6	...	6	0.12	
15	Sakit Sebah	1	2	...	...	...	...	...	...	...	...	1	2	3	0.06	
16	Other diseases of Circulatory system	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
17	Bronchitis (Batok)	16	18	4	1	...	...	2	1	...	...	22	20	42	0.84	
18	Pneumonia (all forms)	1	...	15	3	1	...	...	...	...	...	17	3	20	0.40	
19	Demam Batok	18	13	3	1	...	...	...	2	...	...	21	16	37	0.74	
20	Other diseases of Resp. System	9	2	1	...	1	...	...	1	...	...	11	3	14	0.28	
21	Diarrhoea & Enteritis	...	1	...	...	...	...	...	...	...	...	...	1	1	0.02	
22	Other diseases of digestive system	6	5	3	1	...	...	...	1	...	...	9	7	16	0.32	
23	Convulsions	43	42	6	10	...	...	2	3	...	...	51	55	106	2.13	
24	Diseases of nervous sys: & sense organs	1	...	1	...	...	...	...	...	...	...	2	...	2	0.04	
25	Nonvenereal Dis. of Genitourinary sys:	...	...	1	...	...	...	...	...	...	...	1	...	1	0.02	
26	Basal	9	8	6	...	...	...	2	...	...	...	17	8	25	0.50	
27	Dise: of pregnancy child birth	...	15	...	6	...	...	...	2	...	...	...	23	23	0.46	
28	Premature birth & diseases of early infancy	...	...	...	1	...	...	...	...	...	...	...	1	1	0.02	
29	Old age or Senility	22	26	1	...	...	...	...	2	...	...	23	28	51	1.02	
30	Violence (all forms including accidents)	...	4	3	2	1	...	1	...	...	...	7	4	11	0.22	
31	Other causes	...	5	5	3	...	...	...	...	...	...	8	5	13	0.26	
	TOTAL	...	300	270	103	36	6	1	10	16	...	1	419	324	743	14.92

## (g) Deaths according to Sex and Nationality.

Nationality			Males	Females	Total
Eurasians	...	...	...	1	1
Malays	...	...	300	270	570
Chinese	...	...	103	36	139
Indians	...	...	6	1	7
Siamese	...	...	10	16	26
	Total	...	419	324	743

## (h) Deaths grouped according to age, Sex and Nationality.

Age Groups		Sex	Europeans	Eurasians	Malays	Chinese	Indians	Siamese	Total
0 to 3 months	... { M F	..	..	..	34 29	10 4	..	3 3	47 36
4 „ 12 „	... { M F	..	..	..	18 20	2 4	1	1 1	22 25
1 „ 4 years	... { M F	..	..	..	33 30	6 6	..	1 ..	40 36
5 „ 9 „	... { M F	..	..	..	12 12	1 3	..	..	13 15
10 „ 14 „	... { M F	..	..	..	6 7	.. 1	..	..	6 8
15 „ 19 „	... { M F	..	..	..	4 6	1 2	..	.. 1	5 9
20 „ 24 „	... { M F	..	..	..	14 10	4 2	..	.. 1	18 13
25 „ 29 „	... { M F	..	..	..	8 7	6 5	..	1 2	15 14
30 „ 34 „	... { M F	..	..	..	18 17	5 1	1	.. 1	25 18
35 „ 39 „	... { M F	..	..	..	21 8	11 1	2	.. 1	34 11
40 „ 44 „	... { M F	..	..	..	16 9	6 3	..	.. 1	23 12
45 „ 49 „	... { M F	..	..	..	11 8	17 2	..	..	28 10
50 „ 54 „	... { M F	..	..	..	13 12	12 ..	1	.. ..	27 12
55 „ 64 „	... { M F	..	..	1	29 38	14 1	1	.. ..	44 44
65 „ 74 „	... { M F	..	..	..	22 16	8 ..	..	..	30 16
75 and above	... { M F	..	..	..	41 41	.. 1	..	.. 3	42 45
	TOTAL ...	...	..	1	570	139	7	26	743

## HOSPITAL AND DISPENSARIES.

### GENERAL HOSPITAL, KANGAR.

The number of indoor cases treated during the year was 1,105. There were 62 deaths, being a percentage of 5.61 to total treated. Excluding 23 deaths which occurred within 48 hours of admission, the death rate was 3.60.

The daily average number of inpatients was 45.62.

The largest number of inpatients on one day was 65 on 22-8-32.

#### Indoor Patients according to Nationalities.

Nationality	No. treated	Deaths	Percentage of deaths	Deaths within 48 hours
Chinese	651	50	7.68	21
Indians	271	6	2.21	1
Malays	168	5	2.98	1
Javanese	3	...	...	...
Siamese	10	...	...	...
Others	2	1	50.00	...
Total	1,105	62	5.61	23

There was an increase in the number of cases admitted for Enteric fever, Pulmonary tuberculosis, other lung complaints, injuries and other diseases; a slight fall in the number of cases admitted for Malaria, Amoebic dysentery, Pneumonia and Ankylostomiasis.

The mortality from malaria was rather less, the least for the past three years, though higher than that in 1347.

The mortality from pulmonary tuberculosis and pneumonia still continue to be very high.

### ADMISSIONS FROM ESTATES AND MINES.

The total number of patients from Estates and Mines was 28, with one death or a percentage of 3.57 (a case of Pneumonia).

		Remained	Admitted	Total	Deaths
Chinese	...	...	7	7	1
Indians	...	2	21	23	...
Total	...	2	28	30	1

## PREVAILING DISEASES.

34

Diseases	1930 A. D.			1931 A. D.			1932 A. D.		
	Deaths	Percentage Cases	Deaths Percentage Cases	Deaths	Percentage Cases	Deaths	Percentage Cases	Deaths	Percentage Cases
Malaria	10	2.28	19.1	12	6.28	37.4	15	4.01	36.7
Dysentery Amoebic	3	1.29	12	...	...	7	1	14.29	12
Bacillary	...	...	...	...	...	3	1	33.33	6
“ Venereal Diseases	20	...	14	...	...	41	...	...	45
Pulmonary Tuberculosis	28	9	32.14	12	2	16.66	42	7	14.29
Pneumonia	...	...	...	...	...	...	...	44	30
Other lung complaints	68	17	25.00	64	11	17.19	85	19	22.35
Ankylostomiasis	36	4	11.11	15	1	6.66	45	1	2.22
Ulcers	...	...	...	29	...	...	81	...	...
Injuries	90	2	2.22	56	...	...	105	2	1.90
Other diseases	340	12	3.53	249	10	4.02	336	21	6.25
Total	...	57	5.16	642	36	5.61	1,119	67	6.0
Deaths in 24 hours							82	7.5	1,099

## Infectious Diseases with Deaths.

Diseases	Total treated	Deaths	Percentage of deaths
Chicken Pox	2	...	...
Dysentery	12	1	8.33
Enteric Fever	9	1	11.11
Influenza	25	...	...
Measles	1	...	...
Pneumonia	35	16	45.71
Tropical Typhus	2	...	...
Tetanus	3	3	100.00
Tuberculosis	46	10	21.74
Whooping cough	2	...	...
Total	137	31	22.63

## SURGICAL OPERATIONS.

3 major operations and 152 minor operations were performed.

## LABORATORY WORK.

Blood films were examined in 1,843 instances with the following results.

Malaria B.T.	..	..	..	..	262
„ M.T.	..	..	..	..	143
„ Quartan	..	..	..	..	..
- „ Mixed	..	..	..	..	39
Negative	..	..	..	..	1,399
				Total	1,843

Other specimens examined totalled 2,549 (for details vide Appendix B.)

## Post Mortem Examinations.

Medicolegal	..	..	..	..	9
Pathological	..	..	..	..	22
				Total	.. 31

## OUT DOOR DEPARTMENT.

Number of new cases	..	..	..	..	6,570
Repetitions	..	..	..	..	2,419

The nationalities who received treatment were:—

Chinese	..	..	..	..	1,011
Indians	..	..	..	..	1,185
Malays	..	..	..	..	4,228
Siamese	..	..	..	..	47
Europeans	..	..	..	..	28
Eurasians	..	..	..	..	65
Others	..	..	..	..	6
				Total	.. 6,570

In addition to those treated at the hospital dispensary, 56 cases were treated in the Kangar Gaol.

The Hospital Midwife attended 6 cases in their houses.

Neosalvarsan injection numbered 2,180 of which 1,958 were for Yaws and 222 for other conditions. 41 of these injections were given to indoor patients for yaws, and the rest to out door cases.

The Travelling Dispensary attended to 1,123 cases excluding cooly lines, schools and police stations.

One mental case (Male Malay) was transferred to the Central Hospital, Tanjong Rambutan in 1932. One Malay patient died there during the year under review.

There were 16 Perlis patients at the Central Mental Hospital, Tanjong Rambutan at the end of the year—5 females and 11 males.

Lepers. Nil.

13 cases were transferred to General Hospital, Alor Star,

## APPENDIX—A.

RETURN OF SICK INDOOR PATIENTS OF THE GENERAL HOSPITAL, PERLIS,  
FOR THE YEAR 1932 A. D.

Specific Diseases	Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
<b>INFECTIVE DISEASES.</b>									
Chicken Pox ...	...	2	2	2	...	...	...	...	...
Dysentery Amœbic ...	...	7	7	6	...	...	1	...	...
" Bacillary ...	...	5	5	4	...	1	...	...	...
Enteric Fever ...	...	9	9	6	...	1	1	1	1
Gonorrhœa ...	...	17	17	17	...	...	...	...	...
Gonorrhœal Arthritis ...	...	3	3	3	...	...	...	...	...
" Rheumatism ...	...	1	2	2	...	...	...	...	...
" Conjunctivitis ...	...	2	2	2	...	...	...	...	...
" Epididymitis ...	...	2	2	2	...	...	...	...	...
Influenza ...	...	25	25	25	...	...	...	...	...
<b>Malaria :—</b>									
(a) Benign Tertian ...	8	164	172	168	...	1	1	2	
(b) Quartan ...	...	...	...	...	...	...	...	...	...
(c) Malignant Tertian ...	2	70	72	63	...	...	5	4	
(d) Mixed Infection ...	1	27	28	27	...	...	1	...	
(e) Type undiagnosed ...	...	20	20	18	...	...	1	1	
(f) Chronic Malaria ...	1	4	5	5	...	...	...	...	
Measles ...	...	1	1	1	...	...	...	...	...
Pneumonia ...	...	35	35	15	...	...	16	4	
Pyrexia of uncertain origin ...	...	12	12	11	...	...	...	1	
Rheumatism ...	...	2	2	2	...	...	...	...	
<b>Syphilis :—</b>									
(a) Primary ...	...	3	3	3	...	...	...	...	...
(b) Secondary ...	...	1	8	9	9	...	...	...	...
(c) Tertiary ...	...	3	3	3	...	...	...	...	...
Tetanus ...	...	3	3	...	...	...	3	...	...
Tropical typhus ...	...	2	2	1	...	...	...	1	
<b>Tuberculosis :—</b>									
(a) General ...	...	1	1	...	...	...	1	...	
(b) Renal ...	...	1	1	...	...	...	1	...	
(c) Glands neck ...	1	1	2	2	...	...	...	...	
(d) Pulmonary Tuberculosis ...	5	41	46	33	...	...	10	3	
Whopping cough ...	...	2	2	2	...	...	...	...	...
Yaws ...	...	7	7	7	...	...	...	...	...
<b>INTOXICATIONS.</b>									
Opium Intoxication ...	...	3	3	3	...	...	...	...	...
<b>GENERAL DISEASES NOT INCLUDED IN THE TWO PRECEDING GROUPS.</b>									
Debility ...	...	1	1	...	...	...	...	1	
<b>CERTAIN MORBID CONDITIONS INCIDENT TO VARIOUS PARTS.</b>									
New growth : Nonmalignant (lipoma-forehead) ...	...	1	1	1	...	...	...	...	...
New growth Malignant ...	...	...	...	...	...	...	...	...	...
Carcinoma liver ...	...	2	2	1	...	...	1	...	...
Carcinoma cervix ...	...	1	1	1	...	...	...	...	...

Specific Diseases	Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
<b>DISEASES OF THE NERVOUS SYSTEM.</b>									
Nerves :—									
Neuritis	...	...	8	8	8	...	...	...	...
Spinal Cord and Membranes :—									
Lateral Sclerosis	...	...	1	1	1	...	...	...	...
Brain and Membranes :—									
Thrombosis	...	...	1	1	1	...	...	...	...
Nervous Disorders :—									
Hemiplegia	...	...	4	4	3	...	...	1	...
Migraine	...	...	1	1	1	...	...	...	...
Mental Diseases :—									
Mania	...	...	2	2	1	1	...	...	...
General paralysis of the insane	...	...	1	1	1	...	...	...	...
Observations	...	...	6	6	6	...	...	...	...
<b>DISEASES OF THE EYE.</b>									
Conjunctivitis	...	...	1	1	1	...	...	...	...
Keratitis	...	...	1	1	1	...	...	...	...
Ulcer of Cornea	...	...	1	1	1	...	...	...	...
Iridocyclitis	...	...	1	1	1	...	...	...	...
Cataract	...	...	2	2	2	...	...	...	...
<b>DISEASES OF THE EAR.</b>									
Inflammation	...	...	4	4	4	...	...	...	...
<b>DISEASES OF THE NOSE.</b>									
Epistaxis	...	...	2	2	2	...	...	...	...
<b>DISEASES OF THE CIRCULATORY SYSTEM.</b>									
Endocarditis Malignant	...	...	1	1	...	...	...	1	...
Valvular disease	...	...	3	3	2	...	...	1	...
Myocarditis	...	...	11	11	4	...	...	6	1
Dilatation of heart	...	...	1	1	1	...	...	...	...
Fatty degeneration	...	...	1	1	...	...	...	1	...
Senile gangrene	...	...	1	1	...	...	...	...	1
<b>DISEASES OF THE RESPIRATORY SYSTEM.</b>									
Asthma	...	...	1	19	20	19	...	...	1
Bronchiectasis	...	...	1	1	1	...	...	...	...
Bronchitis	...	...	1	27	28	27	...	...	1
Broncho-pneumonia	...	...	7	7	6	...	...	...	1
Emphysema	...	...	2	2	1	...	...	1	...
Empyema	...	...	2	2	...	...	...	2	...
Pharyngitis	...	...	10	10	10	...	...	...	...
Pleurisy	...	...	4	4	4	...	...	...	...

Specific Diseases		Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
<b>DISEASES OF THE DIGESTIVE SYSTEM.</b>										
Gingivitis	...	2	2	2	2	...	...	...	...	
Stomatitis mercurial	...	1	1	1	1	...	...	...	...	
Dyspepsia	...	2	2	2	2	...	...	...	...	
Tonsillitis	...	1	1	1	1	...	...	...	...	
Haemorrhage from the tooth socket	...	1	1	1	1	...	...	...	...	
Gastritis	...	4	4	4	4	...	...	...	...	
Gastric ulcer	...	1	1	1	1	...	...	...	...	
Enteritis	...	4	4	4	4	...	...	...	...	
Appendicitis	...	3	3	3	...	3	...	...	...	To G.H., A.S.
Colitis	...	2	2	2	2	...	...	...	...	
Duodenal Ulcer	...	3	3	3	2	1	...	...	...	"
Rupture of small intestines										
Typhoid	...	1	1	1	...	1	...	...	...	"
Intussusception	...	1	1	1	...	1	...	...	...	
Chronic obstruction-Pylorus	...	1	1	1	1	...	...	...	...	
Diarrhoea	...	2	2	2	2	...	...	...	...	
Colic Intestinal	...	11	11	11	11	...	...	...	...	
Dilatation of stomach	...	1	1	1	1	...	...	...	...	
Cirrhosis of the liver	...	5	5	5	5	...	...	...	...	
Peritonitis	...	1	1	1	...	...	...	1	...	
Foreign body-Oesophagus	...	1	1	1	...	1	...	...	...	
Jaundice catarrhal	...	1	1	1	1	...	...	...	...	
Theombosis of the portal vein	...	1	1	1	...	...	...	1	...	
<b>DISEASES OF THE LYMPHATIC SYSTEM.</b>										
Adenitis	...	4	4	2	...	...	...	...	2	
Bubo	...	1	1	1	1	...	...	...	...	
<b>DISEASES OF THE URINARY SYSTEM.</b>										
Pyonephrosis	...	1	1	...	...	...	...	1	...	
Nephritis subacute	...	8	8	7	7	...	...	...	1	
Cystitis	...	5	5	5	5	...	...	...	...	
Lithiasis	...	1	1	1	1	...	...	...	...	
<b>DISEASES OF THE GENERATIVE SYSTEM.</b>										
<i>Male.</i>										
Soft sore	...	1	1	1	1	...	...	...	...	
Hydrocele	...	1	1	1	1	...	...	...	...	
Stricture	...	2	2	2	2	...	...	...	...	
Phimosis	...	1	1	1	1	...	...	...	...	
<i>Female.</i>										
Endometritis	...	...	...	...	...	...	...	...	...	
Menorrhagia	...	1	1	1	1	...	...	...	...	
<b>AFFECTIONS CONNECTED WITH PREGNANCY AND PARTURITION.</b>										
Natural Labour	...	17	17	16	16	...	...	...	1	
Difficult Labour	...	1	1	...	...	...	...	1	...	
Abortion	...	2	2	2	2	...	...	...	...	
Puerperal Sepsis	...	2	2	2	2	...	...	...	...	
New born	...	5	5	5	5	...	...	1	...	
Premature birth	...	1	1	...	...	...	...	1	...	

Diseases	Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
<b>DISEASES OF THE ORGANS OF LOCOMOTION.</b>									
Periostitis	...	4	4	4	...	...	...	...	...
Caries spine	...	1	2	2	...	...	...	...	...
Necrosis of bones	...	2	2	1	1	...	...	...	To G.H., A.S.
Arthritis	...	4	4	4	...	...	...	...	...
Synovitis	...	1	1	1	...	...	...	...	...
Ankylosis	...	1	1	1	...	...	...	...	...
Myalgia	...	1	1	1	...	...	...	...	...
<b>DISEASES OF THE CONNECTIVE TISSUE.</b>									
Cellulitis	...	14	15	14	...	...	...	1	1
Abscess	...	24	24	23	...	...	...	1	1
Myositis	...	1	1	1	...	...	...	...	...
Sinus	...	3	3	2	...	...	...	1	1
<b>DISEASES OF THE SKIN.</b>									
Arsenical dermatitis	...	1	1	1	...	...	...	...	...
Eczema	...	3	3	3	...	...	...	...	...
Furunculosis	...	1	1	1	...	...	...	...	...
Herpes Zoster	...	1	1	1	...	...	...	...	...
Ulcers	...	47	51	48	...	...	...	3	3
Oriental sore	...	1	1	1	...	...	...	...	...
Purpuric eruptions...	...	1	1	1	...	...	...	...	...
<b>INJURIES.</b>									
(a) Wounds	...	2	60	62	59	1	...	1	1
(b) Sprains and contusions	...	9	9	9	...	...	...	...	"
(c) Abrasions	...	9	9	9	...	...	...	...	...
(d) Fracture simple	...	9	9	8	...	...	...	1	1
(e) Fracture compound	...	4	4	2	2	...	...	...	...
Burns	...	4	4	4	...	...	...	...	"
Dog-bite	...	4	4	2	2	...	...	...	...
Snake-bite	...	1	1	1	...	...	...	...	"
Drowning	...	1	1	1	...	...	...	...	...
<b>PARASITES.</b>									
Taenia Solium	...	1	1	1	...	...	...	...	...
Ascaris lumbricoides	...	23	23	21	...	...	1	1	1
Helminthiasis	...	1	1	1	...	...	...	...	...
Ankylostomiasis	...	1	26	27	27	...	...	...	...
Ringworm	...	1	1	1	...	...	...	...	...
Scabies	...	1	4	5	4	...	...	1	1
For observation	...	34	34	33	...	...	...	1	1
For sake of mother, child, etc...	2	47	49	49	...	...	...	...	...
<b>TOTAL</b>	<b>...</b>	<b>35</b>	<b>1,070</b>	<b>1,105</b>	<b>987</b>	<b>14</b>	<b>3</b>	<b>62</b>	<b>39</b>

Nationalities			Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
Chinese	...	...	25	626	651	563	9	2	50	27	
Indians	...	...	5	266	271	253	2	1	6	9	
Malays	...	...	3	165	168	158	3	...	5	2	
Javanese	...	...	2	1	3	2	...	...	...	1	
Siamese	...	...	...	10	10	10	...	...	...	...	
Others	...	...	...	2	2	1	...	...	1	...	
TOTAL	...	35	1,070	1,105	987	14	3	62	39		

Percentage of deaths to total treated = 5·61.

Total number of cases which proved fatal within 48 hours of admission = 23.

Percentage of deaths to total treated excluding deaths within 48 hours of admission = 3·60.

Average duration of stay in hospital of fatal cases = 18·68 days.

Average daily number of sick = 45·62.

Largest number of sick on one day with date = 65 on 22-8-32.

Total number of beds = 60.

16 deaths occurred within 24 hours of admission.

Major operations 3. Minor operations 154.

## APPENDIX—B.

*Laboratory Work.*

Specimens			Positive	Negative	Total
Blood (Malaria)	...	...	444	1399	1843
Pus	...	...	34	28	62
Eye Smear	...	...	6	11	17
Nasal Smear	...	...	1	8	9
Sputum	...	...	56	276	332
Stool	...	...	907	461	1368
Urine	...	...	122	639	761
Total			1570	2822	4392

## APPENDIX—C.

*Return of Sick Prisoners admitted into Kangar Hospital in 1932 A.D.*

Diseases			Cases.	Deaths.
Abrasions	..	..	..	1
Adenitis	..	..	..	1
Ascariasis	..	..	..	2
Asthma	..	..	..	6
Bronchitis	..	..	..	1
Cellulitis	..	..	..	1
Colic intestinal	..	..	..	2
Colitis	..	..	..	1
Enteritis	..	..	..	1
Epistaxis	..	..	..	1
Gonorrhoea	..	..	..	1
Gonorrhoeal Arthritis	..	..	..	1
Influenza	..	..	..	12
Injury foot	..	..	..	1
Malaria B.T.	..	..	..	3
Necrosis of bones of foot	..	..	..	1
Observation	..	..	..	1
Opium Intoxication	..	..	..	2
Pharyngitis	..	..	..	3
Pneumonia	..	..	..	1
Pyrexia of unknown origin	..	..	..	3
Tapeworm	..	..	..	1
Tonsillitis	..	..	..	1
			Total ..	48

## APPENDIX—D.

*Deaths in Perlis according to Mukims and Nationality, 1932 A. D.*

No.	Mukims	Malays		Chinese		Indians		Siamese		Eurasians		Total		Total
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
1	Abi	...	19	11	...	...	...	...	...	...	...	19	11	30
2	Arau	...	49	63	10	5	...	...	2	7	...	61	75	136
3	Bintong	...	8	11	1	...	...	...	...	...	...	9	11	20
4	Chuping	...	20	10	1	...	...	...	6	7	...	27	17	44
5	Kuala Perlis	...	21	10	7	5	...	...	...	...	...	28	15	43
6	Oran	...	22	17	1	1	...	...	...	...	...	23	18	41
7	Padang Malau	...	19	23	19	7	...	...	1	...	...	39	30	69
8	Paya	...	52	51	52	11	6	1	1	1	...	111	65	176
9	Sanglang	...	39	20	7	5	...	...	...	1	...	46	26	72
10	Utan Aji	...	31	32	2	...	...	...	...	...	...	33	32	65
11	Utan Gelam	...	20	22	3	2	...	...	...	...	...	23	24	47
	Total	...	300	270	103	36	6	1	10	16	...	419	324	743

## APPENDIX—E.

### *Distribution of deaths according to Mukims and Diseases.*

## APPENDIX—F.

*Infantile Mortality in Perlis.*

Mukims	Malays		Chinese		Indians		Siamese		Total		Total	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
Abi	...	3	5	...	...	...	...	...	3	5	8	
Arau	...	7	13	2	2	...	...	...	9	16	25	
Bintong	...	...	1	...	...	...	...	...	...	1	1	
Chuping	...	2	1	...	...	...	...	4	3	6	10	
Kuala Perlis	...	2	2	...	1	...	...	...	...	2	5	
Oran	...	2	2	...	1	...	...	...	...	2	5	
Padang Malau	...	2	4	3	...	...	...	...	5	4	9	
Paya	...	12	5	5	3	1	...	...	18	8	26	
Sanglang	...	12	1	2	1	...	...	...	14	2	16	
Utan Aji	...	5	7	...	...	...	...	...	5	7	12	
Utan Gelam	...	5	8	...	...	...	...	...	5	8	13	
Total	...	52	49	12	8	1	...	4	4	69	61	130

## APPENDIX—G.

*Births and Still-Births in Perlis.*

Mukims		BIRTHS					STILL BIRTHS				Total
		Malays	Chinese	Indians	Siamese	Total	Malays	Chinese	Indians	Siamese	
Abi	...	51	...	...	...	51	1	...	...	...	1
Arau	...	168	23	7	24	222	7	2	...	...	9
Bintong	...	39	1	...	...	40	1	...	...	...	1
Chuping	...	53	3	...	16	72	...	...	...	...	3
Kuala Perlis	...	69	26	...	...	95	1	...	...	...	1
Oran	...	62	2	3	2	69	1	...	1	...	2
Padang Malau	...	69	27	2	...	98	2	1	...	1	4
Paya	...	130	45	6	1	182	..	.	...	...	4
Sanglang	...	168	21	...	...	189	4	1	...	...	5
Utan Aji	...	85	3	...	...	88	1	...	...	...	1
Utan Gelam	...	125	7	...	...	132	1	2	...	...	3
Total	...	1,019	158	18	43	1,238	22	10	1	1	34

## APPENDIX—H.

*Deaths grouped according to age, Sex and Nationality.*

Age groups			Sex	Europeans	Eurasians	Chinese	Malays	Indians	Siamese	Total
0	...	...	{ M F	...	...	3 3	23 16	...	1 1	27 20
4 weeks	...	...	{ M F	...	...	5 1	10 7	...	1 1	16 9
3 months	...	...	{ M F	...	...	3 2	11 12	...	1 1	15 15
6 "	...	...	{ M F	...	...	1 1	6 9	...	1 ...	8 10
1 year	...	...	{ M F	...	...	6 7	35 35	1	1 1	43 43
5 years	...	...	{ M F	...	...	1 3	12 12	...	...	13 15
10 "	...	...	{ M F	...	...	...	6 7	...	...	6 8
15 "	...	...	{ M F	...	...	1 2	4 6	...	...	5 9
20 "	...	...	{ M F	...	...	4 2	14 10	...	...	18 13
25 "	...	...	{ M F	...	...	6 5	8 7	...	1 2	15 14
30 "	...	...	{ M F	...	...	5 1	18 17	1	1 ...	25 18
35 "	...	...	{ M F	...	...	11 1	21 8	2	...	34 11
40 "	...	...	{ M F	...	...	6 3	16 9	...	1 ...	23 12
45 "	...	...	{ M F	...	...	17 2	11 8	...	...	28 10
50 "	...	...	{ M F	...	...	12	13 12	1	1 ...	27 12
55 "	...	...	{ M F	...	1	14 1	29 38	1	...	44 44
65 "	...	...	{ M F	...	...	8	22 16	...	...	30 16
75 " and above	...	...	{ M F	...	...	1	41 41	...	1 3	42 45
TOTAL	...			...	1	139	570	7	26	743

## APPENDIX—I.

*Meteorology, 1932 A.D.*

## RAINFALL.

					Inches
January	..	..	..	..	nil
February	..	..	..	..	1.53
March	..	..	..	..	4.06
April	..	..	..	..	6.23
May	..	..	..	..	4.49
June	..	..	..	..	7.94
July	..	..	..	..	8.21
August	..	..	..	..	4.52
September	..	..	..	..	8.67
October	..	..	..	..	7.71
November	..	..	..	..	17.69
December	..	..	..	..	1.29
				Total	.. 72.34 inches.

The maximum and minimum temperature in the shade were 97° on 1-5-32 and 66° on 10-12-32.

Greatest rainfall in 24 hours was 3.25 inches on 25-11-32.

Lowest Maximum .. .. 78 on 21-11-32.

Highest minimum .. .. 78 on 10-9-32 and 16-6-32.

## APPENDIX—J.

*Report showing the number and types of larvae collected in Perlis in the year 1932.*

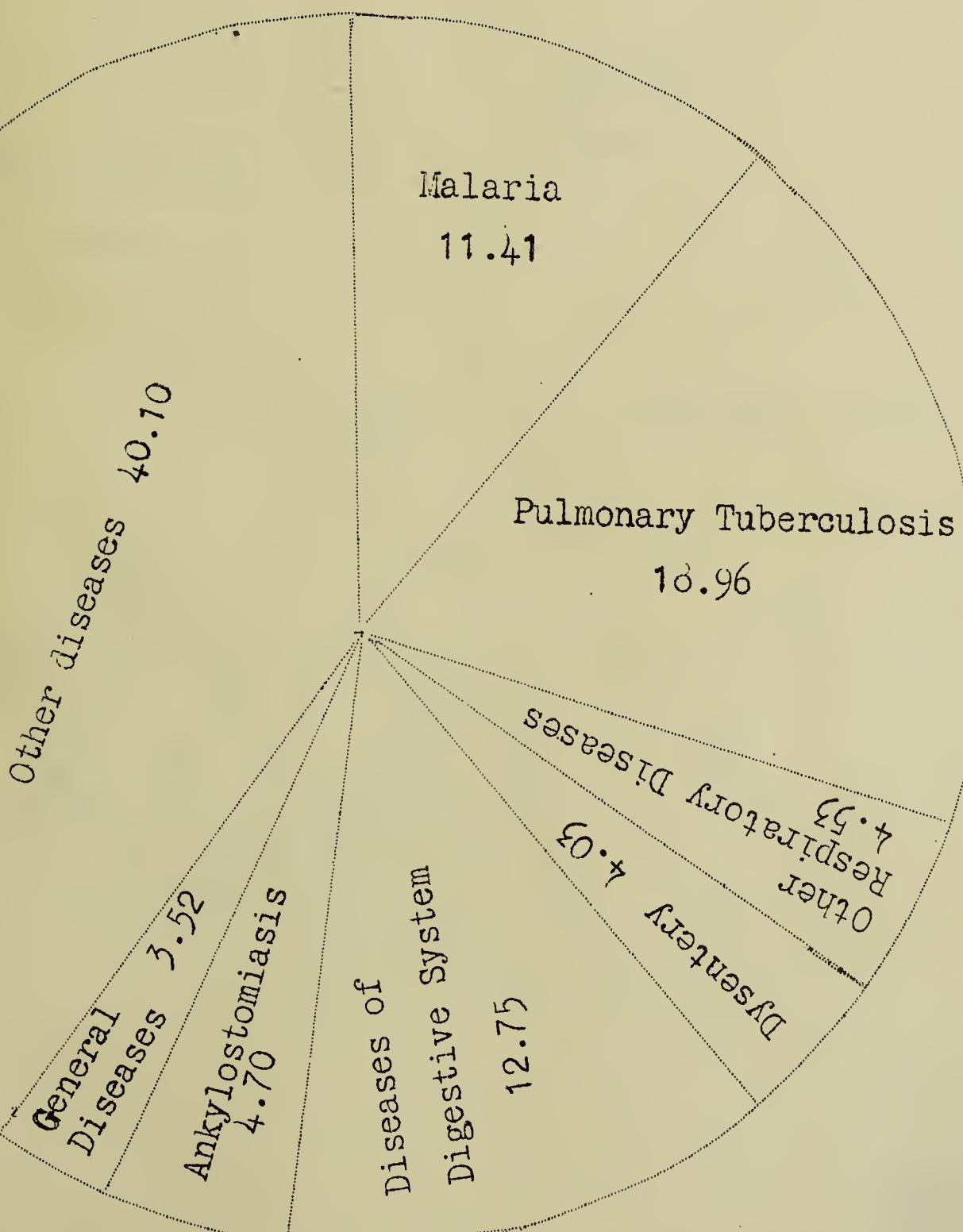
FOUND AT	Aconitus	Barbirostris	Fuliginosus	Hyrcanus	Kochii	Sinensis	Tessellatus	Vagus	REMARKS.
Arau ... ..	..	19	15	21	67	...	7	58	
Kangar ... ..	3	22	14	4	55	19	..	21	
<b>TOTAL</b> ...	3	41	29	25	122	19	7	79	

PERCENTAGE OF DEATHS FROM CERTAIN DISEASES TO

PERCENTAGE OF DEATHS OF CERTAIN DISEASES TO  
TOTAL DEATHS IN GOVERNMENT HOSPITALS.

----

TOTAL DEATHS IN GOVERNMENT HOSPITALS, 596.

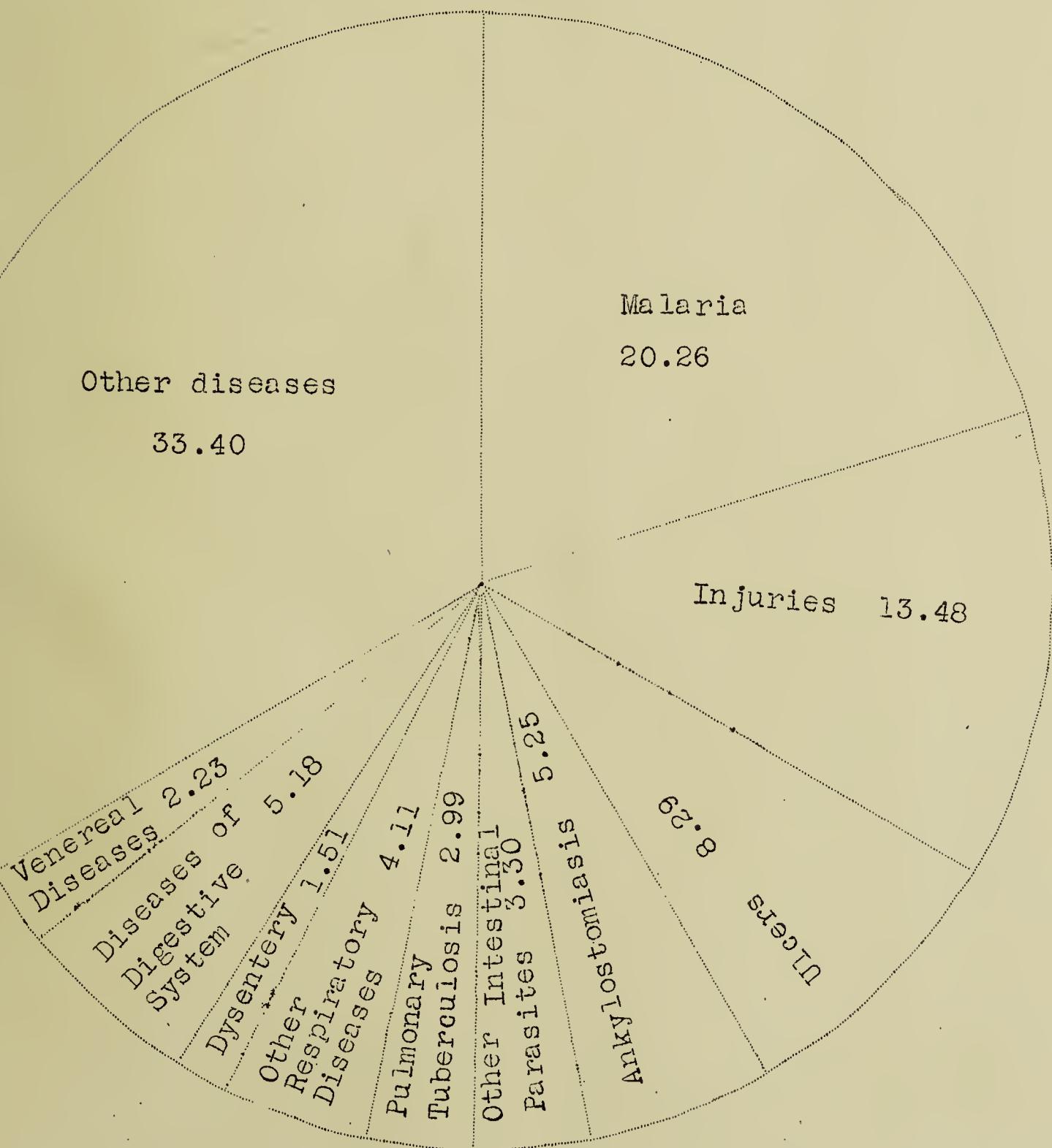




PERCENTAGE OF CASES OF CERTAIN DISEASES TO  
TOTAL TREATED IN GOVERNMENT HOSPITALS.

---

TOTAL TREATED - 12,473.

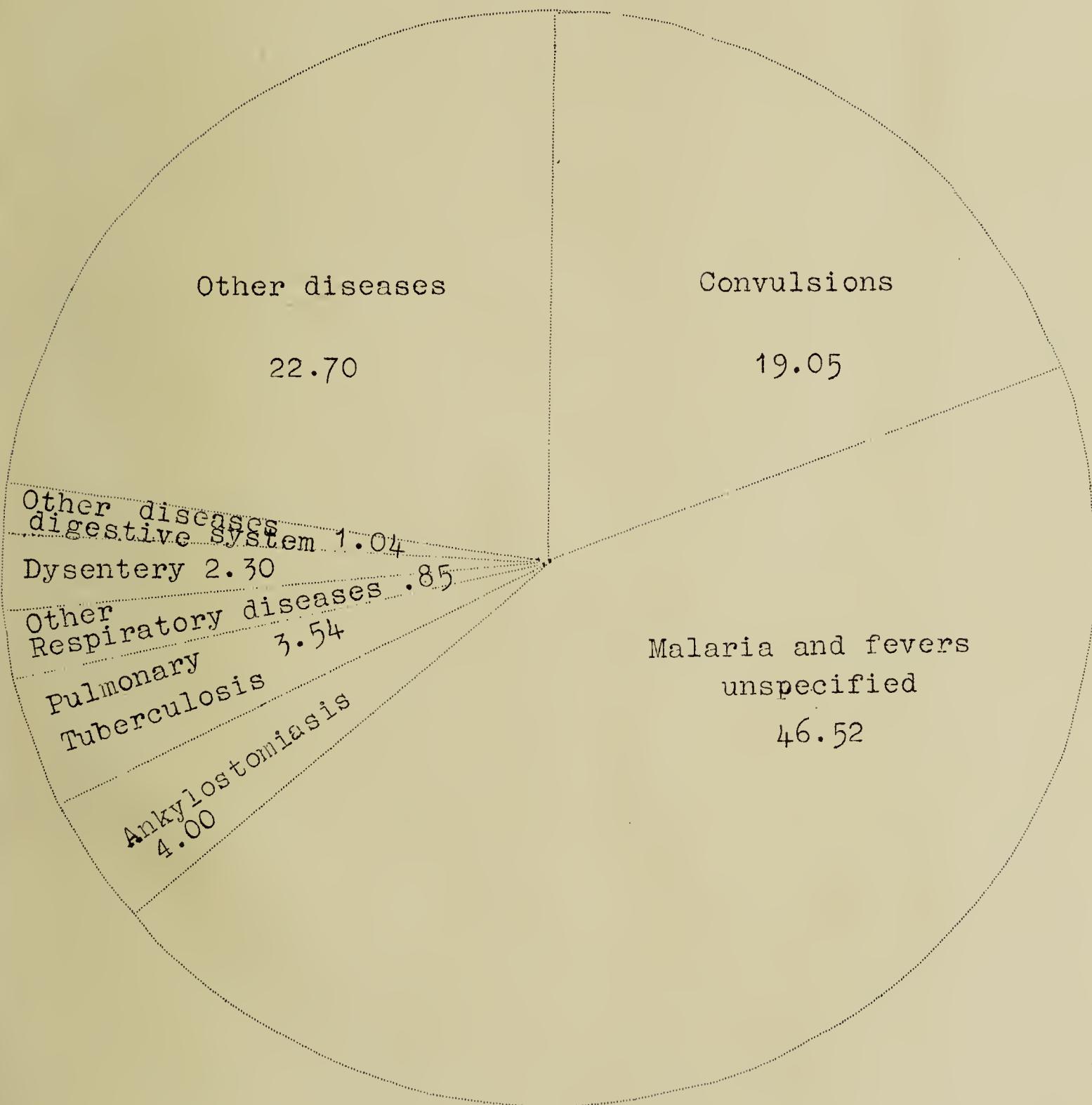




PERCENTAGE OF DEATHS FROM CERTAIN DISEASES TO  
TOTAL DEATHS IN THE STATE.

---

TOTAL DEATHS IN THE STATE - 8,173.





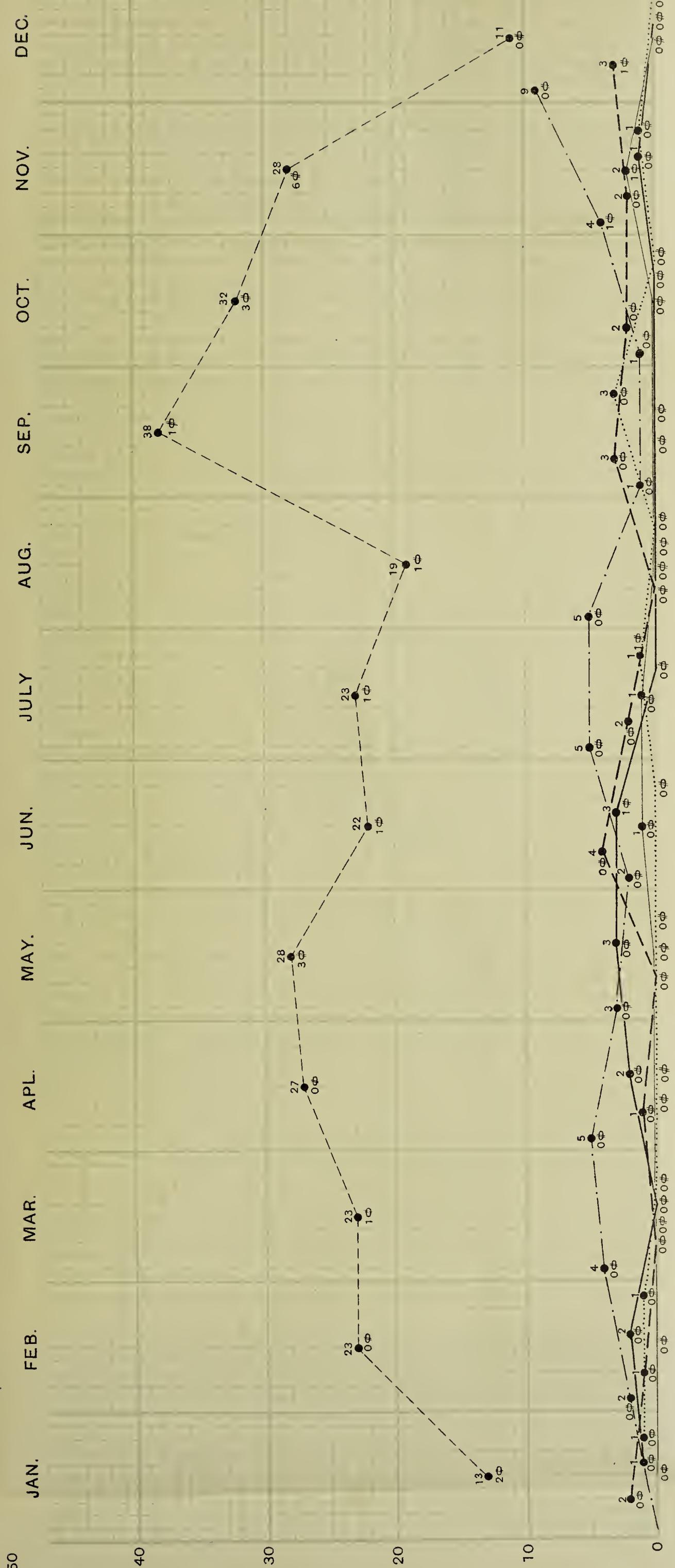


CHART SHOWING PREVAILING DISEASES AMONG ESTATE POPULATION  
ADMISSIONS TO HOSPITALS WITH DEATHS FOR THE PERIOD  
JANUARY 1932 TO DECEMBER 1932

REFERENCE	Other Diseases	Dysentery	Malaria	Other Bowel Diseases	Deaths	Ankylostomiasis	Pneumonia
Other Diseases	—	—	—	—	—	—	—
Malaria	—	—	—	—	—	—	—
Ankylostomiasis	—	—	—	—	—	—	—
Pneumonia	—	—	—	—	—	—	—



# KEDAH

Scale, 12 Miles to 1 Inch

## REFERENCE

- Metalled Road -----  
Route of Travelling Dispensary Ambulance -----  
Hospital or Dispensary ----- O  
Places visited by Travelling Dispensary ----- X







